

JIMMY CORNELL

*WORLD CRUISING
ROUTES*

Second Edition



ADLARD COLES NAUTICAL
London

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living their dreams on the oceans of the world.*

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PREFACE TO THE SECOND EDITION

Since this book was first published in 1987 I have received many positive comments and also some very valuable suggestions from sailors using it. Although in recent years I have not been able to sail as much as I would have liked, mainly because of my involvement with the various sailing events which I organise, it is this very involvement with all those hundreds of active sailors which has provided a rich and constant source of information on new cruising areas, unusual weather conditions, or less frequented sailing routes. I have also benefitted from the first hand experience gained during the first EUROPA Round the World Rally, some of which I sailed in my own *La Aventura*. All this information, gained both directly and indirectly, has been incorporated in this revised and expanded edition.

By far the most important change that has occurred since this book was first published is the almost total dependence on satellite navigation in offshore sailing. Therefore all routes have been thoroughly revised in light of the ascendancy of satellite navigation. To simplify the planning of individual routes essential waypoints are listed. Several new routes have also been added as boats venture further afield and new cruising grounds are being discovered. Landfall information, as well as main ports of entry are also included to assist the planning of each passage from the beginning to its successful end. In many places routes have been regrouped by bringing together all routes originating from the same country or group of islands. For the sake of clarity, every such group

has its own sketch map, so all sketch maps have been redrawn and now show not just the route itself but also the main distances.

Sailing routes depend primarily on weather, which changes little over the years. However, possibly as a result of the profound changes that have occurred in the ecological balance of the world environment, there have been several freak weather conditions in recent years. Their most worrying aspect is that they are rarely predicted, occur in the wrong season and often in places where they have not been known before. Violent storms have been recorded recently at times and in places where they had not occurred before. Similarly, the violence of some tropical storms exceeds almost anything that has been experienced before. The depletion of the ozone layer and the gradual warming up of the oceans will undoubtedly affect weather throughout the world and will increase the risk of tropical storms. The unimaginable force of megahurricanes Hugo and Andrew should be a warning of worse things to come. All we can do is heed those warnings, make sure that the seaworthiness of our boats is never in doubt and, whenever possible, limit our cruising to the safe seasons. Also, as the sailing community depends so much on the forces of nature, we should be the first in protecting the environment and not contribute to its callous destruction.

Jimmy Cornell,
Aups, Provence, 1994

EXPLANATORY NOTE

The most important change which has occurred in this edition is the inclusion of individual waypoints for every route. The main aim of these waypoints is to help with the planning of a particular route and, as the original aim of this book was always that of being an aid to route planning, it must be stressed that the inclusion of waypoints must not be regarded as turning this book into a pilot for the world.

In order to organise both routes and waypoints in a logical manner, the world has been divided into three main regions: Atlantic (A), Pacific (P), and Indian (I). Each of the three oceans has been further divided into its two hemispheres, so that sailing routes are grouped in six main regions: North Atlantic (NA), South Atlantic (SA), North Pacific (NP), South Pacific (SP), North Indian (NI), and South Indian (SI). Every route within a region is identified by those two letters and its own number, thus AN46 Madeira to Gibraltar. Because they have certain features in common, transequatorial routes in every ocean have been dealt with separately and are identified by the letter 'T' preceded by the letter identifying the ocean in question, eg PT22 Tahiti to Hawaii. The Red Sea and Mediterranean have been included as separate regions. Because routes in the Red Sea are directional in character, they have been subdivided as northbound (RN) or southbound (RS). As in other parts of the world, Mediterranean routes are dealt with as separate groups and are identified by an 'M'.

Every one of the six main regions has been subdivided into individual groups, the routes included in one of those groups sharing certain common features. The numbering of the group reflects its particular region, thus PS60 groups all routes from New Zealand. Within this particular group there are eight routes, each having an individual iden-

tification number, eg PS64 New Zealand to Fiji. The same system of numbering carries on into the numbering of individual waypoints, so that the various waypoints listed for that route PS64 have the following numbers: PS641, PS642, PS643, etc.

The inclusion of waypoints has made it necessary to redesign the table preceding each route. The aim of these tables is to provide at a glance all the essential information pertaining to each individual route: the best time to sail it, the period of tropical storms, US or British passage charts or sailing directions that will be needed, and the relevant cruising guides.

The waypoints themselves are listed in three separate columns: departure, intermediate, and landfall. Also listed are the coordinates of suggested ports of destination, usually those which are also official ports of entry. Departure waypoints are normally located well outside the port of departure and wherever possible clear of land and traffic. Similarly, landfall waypoints are given as close to land as it is normally safe to go before switching over to coastal navigation. Coordinates of the ports of destination are given in italics eg Whangarei 35°44'S, 174°20'E. The italicised script draws attention to the fact that the particular port cannot be reached directly from the landfall waypoint and therefore its coordinates *should not be used for navigation* and simply fed into the automatic pilot! Indeed, it is rarely possible to sail a direct course from a given landfall point to the nearest port of destination as, for example, above, where the port of Whangarei is located several miles up a winding river. It is therefore hoped that no one will attempt to sail a direct course from PS535 Bream (35°50'S, 174°38'E), the landfall waypoint off Bream Head in the approaches to Whangarei, right into the port of Whangarei itself.

Occasionally italicised coordinates are listed as intermediate waypoints when either a certain detour or an intermediate stop are suggested. For example, such a stop might be considered at Suvorov Atoll by boats on passage from Bora Bora to Pago Pago. Similarly, on a route where individual waypoints cannot be given because of expected weather conditions, such as on route PS44 Samoa to Society Islands, the coordinates of the ports of departure and destination are in italicised script to draw attention to the fact that they are only given for information and that a route cannot be sailed between them.

Just as the number of a route is related to the relevant ocean and hemisphere, so the number of individual waypoints is related to the number of that particular route. Waypoints which are near land also have a name eg PS535 Bream. Intermediate waypoints, especially those which are in mid-ocean, are only identified by their number. Such intermediate waypoints are usually given as a guideline, as in the case of those listed for route PS26 Tahiti to Cape Horn, where the actual route sailed will depend primarily on existing weather conditions. In such situations it is made clear in the text that intermediate waypoints are only hypothetical.

In certain areas the same waypoint is used for several routes, but for the sake of clarity the waypoints are always renumbered to relate to the individual route, although its name will remain the same. Thus, a much used waypoint off Cape Finisterre will appear as AN161 Finisterre on route AN16 Northern Europe to the Mediterranean, and as AN171 Finisterre on route AN17 Northern Europe to Madeira. Occasionally, the same name has had to be used for different waypoints, in which case they have been identified by cardinal points, thus Vincent N, Vincent SW or Vincent S.

On many routes there is a choice of destinations, just as on other routes there is a choice of ports of departure. For instance, boats sailing from Gibraltar to the Azores can clear in at either Ponta Delgada or Horta. Similarly, boats bound from Tonga for the Fijian capital Suva could take their departure from either Tongatapu or Vava'u. On other routes there are two or even three different

ways of sailing that particular route, either because of seasonal differences or other considerations. In all such cases, the alternatives are listed separately and are given their own letter eg route PS14A, route PS14B, etc. Waypoints are listed for each alternative route.

A new feature of this edition is the inclusion of essential landfall information, which was not given in the previous edition. The official ports of entry are mentioned at the end of all major routes, and suggestions are made as to which ports are easier to reach or more convenient to use for clearance purposes. Also indicated are the ports where the authorities need to be contacted in advance by radio as well as the recommended procedure on arrival.

Each group of routes is accompanied by a diagram showing a sketch map of that particular region of the world and also the routes crossing it. Every route is identified by its individual number and also lists relevant distances. Distances between the port of departure and that of destination, are also shown in the table accompanying each route.

Author's Note

The sketch maps accompanying the text are simple diagrams to show approximate positions of routes only. Since the coordinates of waypoints and any other coordinates listed in this book are only for planning purposes and must not be used for navigation, sailors using this book are strongly advised always to consult the relevant charts and sailing directions for the areas they are sailing through or are planning to cruise. They should also endeavour to obtain the latest corrections to their charts and sailing directions. One must also be aware that there are serious discrepancies between the position of certain reefs, rocks or even entire islands, as depicted on some charts, and their actual coordinates as calculated by GPS.

While every effort has been made to ensure the accuracy of the data included in this volume, neither the publishers nor the author can assume any responsibility for possible errors made in these pages.

INTRODUCTION

As a young man growing up in Romania, caged in by an iron curtain which separated me from the rest of the world, planning imaginary journeys was the only way I was allowed to travel. I relieved my frustrations by making dream voyages to exotic places, tracing my finger along the routes I would take on an old atlas of the world. Route planning fascinated me then and continued to do so, even after I obtained my freedom and the world lay before me. Routes across Europe became miraculously transformed into the reality of railroads and motorways, as later on pencil marks on charts were to become sailing tracks across the oceans.

As a voyage around the world passed from being a dream into a possibility, a finger tracing a line on a chart was no longer sufficient and I started planning my voyage in earnest. Trying to translate dreams into concrete plans was not so easy and although the shelves were full of books on almost every aspect of cruising under sail, I found very little on route planning aimed specifically at the small boat voyager. This gap, although annoying, was not enough to deter me from setting off, as so many others had also done. During a six year circumnavigation on *Aventura* with my wife Gwenda and our children Doina and Ivan, we visited some seventy countries in five continents and covered 60,000 miles, including some of the remotest areas of the world. During that long voyage, I retained my interest in routeing and collected information as I went along. Eventually that material was to form the basis of this book. The lessons learnt during my first circumnavigation were put to good use when my present yacht *La Aventura* joined 35 other yachts taking part in the first round the world rally.

This book attempts to fill a gap, which existed when I set off on my first circumnavigation, by pro-

viding essential information on winds, currents, regional and seasonal weather, as well as details of nearly 500 cruising routes. With the help of the information contained in this book, I hope to make it much easier for anyone who intends to undertake an ocean voyage to do all forward planning from the comfort of their home. Once the voyage has started the book will continue to be useful in suggesting alternatives or detours from the main itinerary.

World Cruising Routes is a guide to cruising routes not a comprehensive pilot for the entire world, and its users are urged to refer to the relevant sailing directions, pilot charts, and regional publications before undertaking a particular passage. Because of the vast area included in the book, only the basic data needed for planning an extensive cruise could be included, as it would have been physically impossible to include in one single volume detailed information about every route. I had to limit myself to giving only general directions on how to get from one destination to the next. These directions mention safe and dangerous seasons, prevailing winds, the kind of weather to be expected, as well as other factors that ought to be known by a small boat voyager. Whenever a particular aspect was debatable or variable, such as the beginning or end of a hurricane season, the strength of a particular current, or the frequency of gales in a specific area, I have preferred to err on the side of caution. For the same reason, I have concentrated on giving details for what is considered to be the safe cruising season and less on weather conditions during unfavourable seasons. I believe that cruising should be a pleasurable activity, and because many unpleasant conditions can be avoided with a little planning this aspect is emphasised throughout the book. Therefore the book concen-

trates more on the tropical regions of the world, where most sailors intend to cruise or dream of cruising one day, and less on how to prepare for a gale swept mid-winter crossing of the North Atlantic.

The primary aim of this book is to enable the reader to plan a voyage from beginning to end and the information needed to do this is fourfold: general offshore weather conditions, descriptions of actual routes, dangers to be avoided, and some brief landfall information including recommended ports of entry. Areas which are seldom visited by sailing boats have either been omitted or described briefly. The information concerning weather is only intended as a rough guide to what weather conditions can be expected in certain areas by those planning to sail there.

Every route mentions the best time for a passage to be made along that route and the season when tropical storms affect that particular region. The extent of the hurricane season is given for the entire route, even if the point of departure or that of arrival are not themselves subject to tropical storms, but when the threat of hurricanes does exist in some area along that route. Also given are the great circle distances between principal ports, but as these distances are only meant for guidance, they are approximate, especially when the suggested route is not direct. Also indicated at the beginning of each route are the charts and sailing directions (pilots) relevant to that part of the world. Although the sailing directions deal mainly with pilotage in coastal areas, and their use on ocean passages is limited, it is advisable to have on board pilots of areas adjacent to those that will be sailed through in case an emergency landfall has to be made in an area for which charts are not carried. Both American and British charts and publications are indicated because certain parts of the world are covered better by one or the other hydrographic office. As a general rule, British charts are better for areas which were once part of the former British Empire, whereas American charts tend to be more accurate in areas of prime US interest, such as the North Pacific. Although chart and pilot numbers were correct at the time of going to press, some numbers are changed occasionally and this should be borne in mind especially when order-

ing charts suggested at the beginning of each route.

For reasons of space, but also because certain well sailed areas of the world are already more than adequately covered by other publications, I have kept to a minimum the information on cruising routes within North America, Northern Europe, and the Mediterranean. The few routes mentioned for those areas are only meant for general guidance for outsiders who plan to cruise in those countries and not as a cruising guide once there. In a similar way, the book gives routes on how to get to a certain area, for example the Bahamas, but it is not a guide to cruising between islands within that area.

I hope to be forgiven if I have missed or overlooked some routes. Several times I have decided to omit a little frequented route when I knew, for instance, that there is rarely more than one cruising boat per year sailing from Tuvalu to the Solomon Islands direct. In such cases I considered that there was sufficient information which could be taken from adjacent routes, where conditions are similar.

There are probably some people who expect a book of this kind to provide precise solutions for all their needs. Obviously this would be impossible, especially when dealing with something as inconsistent as winds and weather. Every so often freak weather occurs which can affect even the normally dependable routes. There is an infinite variety of circumstances which renders it impossible to lay down any fixed rule which can be followed to advantage at all times. Therefore, in those cases in which a certain course is pointed out to be the best to be pursued, but this proves impossible to accomplish, it is always better to follow one's instincts, even if it results in a detour or delay.

As well as drawing on a large variety of sources, much of the material included in the book was provided from my own voyaging. I have also received enormous help from my many sailing friends, particularly those who have ventured where I have not. In those areas, the faculty learnt in my youth of transposing myself to unknown places has served me in good stead. I am still tracing my finger along routes on charts, but this time with a little help from my friends.

1

ROUTE PLANNING

Some voyages start as a dream, but end as a nightmare, usually due to lack of planning and inadequate preparation. Almost any well found modern sailing boat is able to travel from point A to point B under most conditions, provided the length of time it takes does not matter. Whether this is worth doing or not is highly debatable. Captain Bligh nearly had a mutiny on his hands when he stubbornly tried to round Cape Horn from east to west in the middle of winter. He finally gave up and turned around only to find an even greater challenge in the Tahitian *vahines*. Evidently, even the best forward planning could not have foreseen that kind of danger.

Fortunately the factors that have to be taken into account when planning an extended voyage are more predictable, and most of the dangers that can threaten a cruise are well known. The wise navigator planning an offshore voyage will try to take full advantage of the favourable winds and currents and avoid encountering any extreme weather. An offshore cruising boat should be well enough constructed so as to be able to withstand the average gale, and fortunately along the routes described in this volume the frequency of violent storms is extremely low during the accepted 'safe' cruising season. The main danger to be aware of are tropical revolving storms, whether these are called hurricanes, cyclones, typhoons or willy-willies, but since these affect known areas during certain times of the year, they can be avoided. This is where advance route planning has a major role to play, as it is perfectly possible to plan a voyage to all the popular cruising areas with virtually no risk of encountering a hurricane, cyclone, or typhoon.

Another element that must be taken into account when planning a voyage are the few areas

of the world considered to be dangerous because of piracy, drug trafficking, or high criminality. Because of their human nature such dangers are more difficult to predict than natural phenomena, although the areas to be avoided are usually known and the sailing grapevine sounds warnings about areas that should be given a wide berth, be it some of the islands between Indonesia and the Philippines, certain countries in East or West Africa, or parts of the Red Sea. This is where a marine SSB radio or an amateur radio can be very useful since it allows one to obtain information from other sailors cruising in areas which one intends to visit in the immediate future.

Yet in spite of all the information available and the fact that so much more is known about the weather systems of the world, small boats still come to grief every year often because their skipper ignore all warnings and decide to spend the hurricane season in an area known to be hit by these violent storms. Less traumatic, but nevertheless uncomfortable, is the realisation made each year by owners of boats from the west coast of America, who find themselves in some South Pacific island at the end of a pleasant downwind cruise without the slightest idea of how to get back home. Eventually some choose the logical solution and carry on westwards, adding thousands of miles to a cruise, which has turned into an unplanned circumnavigation. A certain degree of advance planning could have made life easier. Such lack of forward planning is the main reason why there are always boats for sale in Caribbean ports, their disenchanted European owners not relishing the return voyage across the Atlantic.

On the other hand, there are obviously instances where either by force or by choice one has to fight the elements to reach a certain point.

After transiting the Panama Canal in *Aventura* we decided to visit Peru and the west coast of South America, before starting our cruise among the islands of the South Pacific. As we were very determined to sail to Peru, the only alternative to a long beat against contrary winds and the Humboldt current would have been an even longer detour around Cape Horn or through the Magellan Straits. Our decision to go against the weather was only taken because of our wish to visit a particular place. When planning a longer voyage, however, the most important thing is to make the best use of favourable winds and to avoid bad weather by choosing a suitable course and, above all, by being in the right place at the right time.

When starting to plan a voyage one of the first requirements in the planning stages is a gnomonic chart for the longer offshore passages one intends to undertake. Although GPS has obviated the need for such charts it is wise to have one on board, and to be familiar with their purpose and how to use them. A gnomonic chart is necessary because the ordinary navigational charts, based on the Mercator projection, cannot be used for planning an offshore passage of more than a few hundred miles. On the Mercator charts all meridians are represented as straight parallel lines that do not converge at the poles, as meridians do in reality. This means that any straight line drawn between two points on one of these charts based on the Mercator projection is not necessarily the shortest distance between those two points, and although a ship that sails such a course will reach its destination, it will not be by the shortest route. To be able to sail more efficiently it is necessary to establish the great circle route, which is the shortest distance between two points on the surface of the earth.

The principles of great circle sailing have been known for a long time and it is believed that great navigators such as Columbus and Magellan were already acquainted with the subject. The advantages of sailing along a great circle route were first mentioned in a work by the Portuguese astronomer Pedro Nuñez in 1537. They were brought to the attention of British seamen in the book *The Arte of Navigation* translated into English by Richard Eden in 1561. Other works also referred to the applications of great circle sailing, but the term itself appears to have been coined by John Davis in a book published in 1594 under the title of *Seaman's Secrets*, which described 'three Kinds of

Sayling - Horizontall, Paradoxall and Sayling upon a Great Circle'.

It was about the same time that the Dutch mathematician Gerhard Mercator published a universal map on a projection that now bears his name. A course represented by a straight line on a Mercator chart is called a rhumb line and for short voyages sailing along such a line between the port of departure and that of arrival makes a minimal difference. In order to find the shorter route for a longer passage, the same straight line will have to be drawn on a gnomonic chart, which uses a different projection with meridians converging at the poles and parallels of latitude represented by curved lines. Any straight line on a gnomonic chart is part of a great circle and is indeed the shortest distance between the two points joined by that line. Because gnomonic charts cannot be used for navigation, the great circle track drawn on such a chart has to be transferred to a Mercator chart. This is done by making a note of the latitudes at which the great circle route intersects successive meridians which have been selected at convenient intervals, usually at 5°. These positions are transferred to the corresponding Mercator chart and joined by straight lines. This succession of rhumb lines approximates very closely the actual great circle track for that route.

This rather cumbersome method of finding the great circle track for any chosen route can be avoided by solving the problem not graphically but mathematically. All this is taken care of now by GPS, which gives both the great circle course and distance to the next destination with the added advantage of these values being constantly updated. However, GPS only does this when one is already underway. Therefore, for planning purposes one should obtain either a gnomonic chart or a software programme for one's computer.

The purchase of gnomonic charts is therefore no longer absolutely necessary for those who intend to calculate their great circle course by other means, although acquiring the pilot charts for the oceans that will be crossed is essential. These charts are published by the US Department of Defense Hydrographic Center and can be obtained from the usual chart agents. Pilot charts are issued for all oceans of the world and give monthly or quarterly averages of wind direction and strength, currents, percentages of calms and gales, limits of ice, tropical storm tracks, and other kinds of information. The data contained in these charts is based

on observations made by ships that have passed through those areas and although they give an accurate overall picture of weather conditions for a certain time of year, they are only *averages* and must be regarded as such.

With the help of the relevant pilot charts for the area to be sailed and the directions contained in this book, planning a voyage can start in earnest. In order to make it simpler to draw up the general outline of a longer cruise, some hypothetical voyages are described in the next chapter. These examples are only meant to show what can be done in a given amount of time. Both short term and long term planning are finally the responsibility of the skipper who knows best what are the capabilities and limitations of his or her crew and boat.

The importance of long term or forward planning can be seen from the following example. Presuming that a cruise of a few months is planned in the Lesser Antilles, the order in which the islands are visited should be determined by subsequent plans. Most people leave from the Canaries concerned only with crossing the Atlantic by the fastest and most convenient route, their landfall in the Caribbean being decided by many factors, but not always by long term considerations. If one is planning to sail to Europe or the USA at the end of the cruising season in the Caribbean, the logical way to cruise through the islands is from south to north, so that the same ground will not be covered twice. On the other hand, if the voyage will continue in the Pacific and a transit of the Panama Canal is planned, it makes more sense to end the transatlantic crossing in one of the islands further north, such as Antigua or Guadeloupe, and then sail down the chain of islands towards Grenada or Venezuela. Such a route would ensure better winds when sailing among the Lesser Antilles and also a shorter passage to Panama when the time arrives. The passage across the Caribbean Sea can be very boisterous at the end of winter and a start from one of the ABC Islands off Venezuela (Aruba, Bonaire, or Curaçao) can make that leg shorter and more pleasant. An additional advantage of this route is the fact that the southernmost part of the Caribbean is very rarely affected by hurricanes, so that if the cruise is delayed for any reason, the boat will be in a relatively safe place.

Equally important when forward planning is to allow certain subjective factors to influence the choice of routes. An order of priorities has to be decided and this is usually the point at which one

must be prepared to face up to one's own limitations. All too often people are ashamed to admit to others, and even to themselves, that they are afraid of a certain passage. A good example is the rounding of the Cape of Good Hope, more aptly called the Cape of Storms, which is indeed a very dangerous area, especially if one is not too confident that the boat could take a knockdown or capsize, which is an eventuality that must be faced by all those who take this route. There is absolutely nothing wrong in avoiding such a passage and this can be done easily by choosing the Red Sea route instead. However, this decision must be made well in advance, ideally before going through the Torres Strait and not on the eve of departure from Mauritius.

Reliance on auxiliary engines has become an accepted part of modern cruising and this is the reason why on certain routes skippers are advised to have a good reserve of fuel as this can make a great difference to the length of the passage. The convenience of being able to motor through the doldrums and not be becalmed for days or weeks is one such instance, as is the ability to power against a strong outflowing current to enter a lagoon, which otherwise could not be entered. Filling up one's fuel tanks before a windless passage is part of good forward planning as is choosing a port with good provisioning, refuelling and repair facilities for the start of long off-shore passages.

An important element of advance planning is to be aware of official requirements in the countries to be visited and to know where one may need visas, vaccinations, or cruising permits. Much of this practical information is contained in the companion volume to this book, *World Cruising Handbook*. In spite of sailing boats being able to visit more countries than in the past, in many places formalities have not been simplified. The captain must be aware of specific requirements and the location of the official ports of entry; ignorance of local regulations will not be accepted as an excuse. In Australia, for example, any foreign national, except New Zealanders, arriving without a visa will be heavily fined. So as part of forward planning, one may have to plan a detour to a country where there is a diplomatic mission issuing the necessary visa. Choosing the right place, ideally close to an international airport, is equally important when picking up or dropping off crew. Just as important for long term cruisers is to plan

regular overhauls in places with good repair facilities. My *World Cruising Guide* was written very much with that objective in mind.

These are some of the factors that can influence planning, both in the short and long term. However, what is needed at all times, and especially once a cruise has started, is a good dose of commonsense, which will help solve most problems. Nowhere is this more true than in the realm of navigation, particularly in view of the current reliance on GPS navigation. For example, if one is not too sure about the position of a certain reef, island, or any other danger, it is generally safer to assume that the latitude stated is more accurate than the longitude. The coordinates of most of these dangers were fixed by navigators before the advent of precise modern instruments, and many charts of remote areas have yet to be corrected. This is why it is still perfectly valid to use the practice of the masters of the sailing ships, who always tried to 'run down' the latitude of a given place,

so as to maximise the chances of finding it. On the other hand, if one wishes to avoid a certain danger, the main thing to avoid is its latitude. As many ocean passages along the popular cruising routes are from east to west, this means that it should not be too difficult to choose a safe latitude and stay on it when approaching a known danger.

The influence that such commonsense can have on good seamanship is illustrated by examples in my previous survey books, and one conclusion I drew after talking to a great number of experienced sailors was that one of the most important qualities to have while sailing is patience. A little humility and respect for the powers of nature are undoubtedly just as important and this is probably the explanation why superstitious sailors prefer to say that they are 'bound for' their destination. Many things can happen to stop a ship from reaching its desired destination and careful planning has a major part to play in bringing a ship safely home.

2

PRINCIPAL WORLD CRUISING ROUTES

Planning an offshore voyage is not a simple matter because many factors have to be taken into consideration. The most important factor to be considered is the safety of the vessel and its crew, therefore it is crucial to ensure that the route will avoid areas of known dangers and also that as much as possible of the sailing will be done during favourable seasons. A large proportion of the cruising routes described in this book are in the tropics, which is where world voyagers spend much of their time. However, many tropical areas are only safe for six or seven months of the year, the remaining months being liable to tropical storms. In the following pages I shall try to give some examples of typical world cruises that can be done with maximum safety. The various circumnavigations described are all westabout to take maximum advantage of the prevailing wind systems and to sail as much as possible under trade wind conditions. Because much of the time will be spent in the tropics, the proposed timing will avoid those areas during the tropical storm seasons. The majority of small boat voyages around the world follow the trade wind routes and the number of cruising boats trying to accomplish a circumnavigation against the prevailing winds is so small as not to merit a separate example. Similarly, the following examples all pass through the South Pacific, which continues to be the main attraction for virtually any sailor setting off on a cruise around the world. Routes A to G on the following pages are shown on the endpaper map.

Voyage A: Two year circumnavigation from Europe

The shortest time in which a cruise around the world can be accomplished in a small sailing boat

is probably two years. By precise timing and careful choice of favourable seasons, the two EUROPA Round the World Rallies, in 1991-2 and 1994-5, accomplished a circumnavigation in 16 months. However, these are competitive events and the sailors taking part in them were prepared to move at a relatively fast pace. The two year example is still valid for anyone planning to cruise alone.

If the point of departure is Scandinavia, Britain, or Northern Europe, the recommended time for leaving would be early summer when optimum conditions can be expected in the North Sea, English Channel, and across the Bay of Biscay. Departures from Mediterranean ports and Gibraltar can be left as late as October. This is also the time when boats should be on their way to the Canaries, whether sailing direct or via Madeira.

The earliest time for an Atlantic crossing along the NE trade wind route is after the middle of November, as such a departure ensures that landfall is made in one of the Caribbean islands before Christmas at the beginning of the safe cruising season. However, the chances of finding better winds are higher later in winter and some of the fastest passages have been recorded between January and March. Columbus himself left the Canaries in September and had steady trade winds almost all the way across. That first Atlantic crossing along the trade wind route was undertaken at the height of the hurricane season, when such a passage should not even be considered.

After one or two months in the Eastern Caribbean, the Panama Canal should be transited in February or early March. This avoids arriving in the Marquesas before the end of March when the islands of French Polynesia are still subject to tropical cyclones. Because of the limited time available, Tahiti should be left in early June so as to

arrive in Fiji by July. As these are the months when the SE trades are at their most constant, these long passages can usually be made at good speeds. Passages from Fiji onwards should be timed to pass through the Torres Strait before the end of August or early in September if taking the Cape of Good Hope route.

The passage across the South Indian Ocean will have to be made in a similar rhythm, with long periods at sea and little time to spend in the islands en route. The start of the cyclone season in December indicates a departure from Mauritius for the passage to South Africa not later than the end of October. The next leg to Cape Town is best made in January or February, when conditions around the tip of Africa are considered to be the most favourable.

Those planning to return to the Mediterranean via the Red Sea have the choice of either calling at Bali and carrying on to Singapore, or making their way to Sri Lanka via Christmas Island. A cruising permit is required for those wishing to pass through Indonesia, which probably dictates the choice of route. The advantage of a passage across the North Indian Ocean is that this can be done in January or February, which allows longer time to be spent earlier in the Pacific, negotiating the Torres Strait only in September or even early October. The end of the year will see the boat somewhere in SE Asia preparing for a winter crossing of the North Indian Ocean, when the NE monsoon normally provides excellent sailing conditions in the first months of the year. The subsequent passage through the Red Sea and the transiting of the Suez Canal in March or April will allow the boat to complete its circumnavigation approximately two years after leaving Europe.

Those returning via the Cape of Good Hope can sail to the Azores, either directly or possibly via Brazil, although the latter may add too much time to the return journey. An arrival in the Azores in April or May would enable a return to the point of departure exactly two years after leaving home.

However, there are so many temptations on the way that often such quick voyages end up by stretching into three and even four years. My first circumnavigation on *Aventura* took all of six years, so it is rather ironic that I should be promoting an event which attempts to encompass the world in less than one quarter of that time. Unfortunately not everyone has that kind of time for a circum-

navigation, nor does everyone wish to be away from home for so long, which is probably one of the reasons for the EUROPA Round the World Rally's ongoing success.

The only purpose of this hypothetical example is to show how it is possible to plan a two year circumnavigation so as to be always in the right place at the right time. Indeed, the points made above were put to good use when planning the itinerary of the first Round the World Rally, some of which I sailed in *La Aventura*. The timing of the first event was so successful that the route of the second one remained almost unchanged. The EUROPA Round the World Rally has now become a regular event to be run every three years, the next one being due to start in January 1997.

Voyage B: Two year circumnavigation from the east coast of North America

For boats leaving on a two year circumnavigation from the east coast of North America and planning to start their voyage at the beginning of winter, the timing of departure is crucial. If some time is to be spent in the Lesser Antilles, an attempt should be made to leave by the first week of November sailing directly to the Virgin Islands or one of the islands in the Eastern Caribbean. The schedule is more relaxed if the departure is planned for the end of spring or early summer. In this case boats normally sail to the Eastern Caribbean via Bermuda in May or June and then make their way south in order to spend the summer in an area with a low risk of hurricanes, such as Venezuela, Colombia, or Panama.

For those leaving later in the year and planning to sail straight to Panama, there are two alternatives: either to go via the Bahamas and the Windward Passage or through the Intracoastal Waterway to Florida and thence to Panama. Boats leaving from Florida can leave later in winter and make their way to Panama eastabout or westabout Cuba, either of which is feasible. Those who leave in November and take the longer route via the Eastern Caribbean arrive at the beginning of winter and thus have at least two months to cruise the islands of the Lesser Antilles before sailing to Panama. Whichever route is sailed to Panama, the Canal should be transited in February or early March. This avoids arriving in the Marquesas

before the end of the cyclone season (December to end of March). From Tahiti onwards, the timing is similar to the one described in the previous example. The Society Islands should be left not later than June so as to arrive in Fiji by July. From Fiji onwards, the passages should be timed to pass through the Torres Strait before the end of August or early in September.

The South Indian Ocean will be crossed in a similar rhythm, with long periods at sea and not much time to spend in the islands en route. The start of the cyclone season in December indicates a departure from Mauritius for the passage to South Africa not later than the end of October. The tip of Africa should be weathered in January or February, when conditions in those stormy waters are usually the most favourable. From South Africa boats normally sail to Brazil and thence to the Lesser Antilles. An arrival in the Eastern Caribbean in the spring would enable a return to the point of departure less than two years after leaving home.

A return to America via the North Indian Ocean, the Red Sea, and Mediterranean will certainly make the voyage considerably longer. It is an alternative favoured by many North American sailors who wish to avoid sailing around the Cape of Good Hope. Such an alternative has the attraction of seeing some of SE Asia before the North Indian Ocean is crossed during the NE monsoon of winter. The Red Sea is transited in late winter and the Mediterranean is reached by March. On leaving the Mediterranean, one can either sail home directly, via the Azores and possibly Bermuda, which is best done early in the summer, or take the longer route across the Atlantic via the Canaries, which should not be done before the middle of November.

Voyage C: Three year circumnavigation from Europe or the east coast of North America

The two year circumnavigations described above can be made much more enjoyable if more time is available. Although the additional mileage covered during a three year long circumnavigation would only amount to about 4000 miles, the extra year allows more time to be spent in places en route and makes the entire voyage more enjoyable.

The first part of the voyage either from Europe

or North America would be similar to that described in the previous examples. A little more time can be spent in the Caribbean, but the Panama Canal should be transited in March so as to arrive in the Marquesas before the end of April. The following three months can be spent in French Polynesia, allowing one to be there for the unique 14 July celebrations. Leaving the Society Islands before the end of July makes it possible to spend some time in all the island groups en route to Fiji. Because of the approaching cyclone season (late November to March), a decision must be made whether to spend this in Tonga (Vava'u), American Samoa (Pago Pago), New Zealand, or nontropical Australia. Although a number of boats hole up in one of the first two places, these anchorages are in the cyclone area and the vast majority of those cruising the South Pacific make their way to New Zealand, which is outside the cyclone belt. A stay in Fiji is not recommended as the number of safe anchorages is small and they fill up quickly in an emergency.

The passage from Fiji to New Zealand is normally undertaken in November. Most boats spend the entire cyclone season in New Zealand and leave for the Torres Strait and Indian Ocean early in April. Such a departure allows them to visit some of the island groups bordering on the Coral Sea before reaching the Indian Ocean. Another alternative is to sail across the Tasman Sea from New Zealand to Australia in February or March and then sail up the east coast of Australia towards the Torres Strait. An earlier arrival in the Indian Ocean allows more time to be spent en route, whether in Darwin or Indonesia, if a cruising permit has been obtained beforehand. The rest of the voyage is the same as that described in Voyages A and B.

Voyage D: Three year circumnavigation from the west coast of North America

If a circumnavigation is planned from the west coast of North America, either California or the Pacific Northwest including British Columbia, at least three years should be allowed. The primary destination for almost all of those who undertake this voyage is Tahiti, which can be reached either via Hawaii or the Marquesas. A few boats include the Galapagos Islands on their itinerary and

although permission to stop there is not given automatically, few boats are actually turned away and most are allowed to spend a few days there. For those taking the Hawaiian route, time of departure is less crucial, while a late March or early April departure is recommended for those intending to sail directly to the Marquesas.

Those making an early departure and arriving in French Polynesia in April or May will be able to follow a similar schedule as that described in Voyages A and B. Later departures will not reach Tahiti before July or August, which means that one will not have much time left to spend in the tropics before sailing to a safe place for the coming cyclone season (December to March). The authorities no longer allow boats to remain in French Polynesia during the cyclone season. This certainly applies to those who leave California in late November and sail direct to the Marquesas, as a number of boats have done in recent years. Although the islands of French Polynesia are not visited by cyclones every year one should not be lulled into a false sense of security, as over the years several boats have been lost in cyclones which have struck Eastern Polynesia. One way to avoid spending the cyclone season in French Polynesia is to leave California in November and spend the winter either in Hawaii, Mexico, or Central America. The voyage to the Marquesas or Tahiti can then be made the following March, allowing one to arrive there at the start of the safe season. The rest of the South Pacific cruise could follow the schedule described in either example A or B.

Those who are in a hurry to return home in the shortest time possible should follow the previously suggested timetable across the South Indian Ocean so as to arrive in Cape Town by Christmas. This would allow them to arrive in the Lesser Antilles by February and in Panama by March or April. Once through the Panama Canal the choice is between a dash along the coast of Central America and Mexico, if one can rely on a powerful engine, or a detour to Hawaii in the hope of finding favourable winds for the return voyage. The timing of one's arrival in Panama is crucial if one is planning to sail to California along the coast, because Cabo San Lucas should be cleared before the onset of the hurricane season in June.

Because of this tight scheduling and other considerations, many west coast sailors are put off by the South African route and choose the Red Sea route instead. As described in Voyage A, the pas-

sage across the North Indian Ocean can be done as late as February or even March, which allows a more relaxed pace earlier on. But the main attraction of this alternative route is the chance to spend some time in the Mediterranean. Arriving there through the Suez Canal in April one has about six summer months to sail to Gibraltar and visit interesting places on the way. The passage from Gibraltar to the Canaries can be done in October and the subsequent crossing of the Atlantic will also take place at a good time. Having arrived in the Eastern Caribbean before Christmas, the voyage to Panama and beyond can be undertaken in a more leisurely fashion than if one had arrived there straight from South Africa. With more time in hand even the difficulty of the return passage along the Pacific coast of Central America can be faced with more detachment.

Voyage E: A round Pacific voyage

Probably the greatest disadvantage of the Pacific Ocean from a cruising point of view is that it does not lend itself to a logical circumnavigation, a fact recognised as early as the sixteenth century by the Spanish navigators. Today's voyagers are faced with almost the same dilemma, but at least the improved windward going capability of their craft makes the problem somewhat easier.

The departure point for the suggested Pacific circumnavigation can be either the west coast of North America, which is covered in Voyage D, or Panama, which is described in Voyage A. Because the South Pacific and its myriad islands continue to be the principal attraction of a Pacific cruise, the return voyage to the west coast of North America will be considered from somewhere in the Southwest Pacific, New Zealand being the most likely place for the start of such a voyage. The most logical return itinerary is via Tahiti with the help of westerly winds found below latitude 35°S. This return voyage to Tahiti is best made at the end of the cyclone season, in April or May, before the onset of the southern winter. If a prompt departure is made from New Zealand, there is sufficient time to reach the west coast of North America via Hawaii long before winter also arrives in the northern hemisphere. Such a return trip to Tahiti allows those who had sailed quickly through these islands on their outward voyage to see more of French Polynesia the second time around. The other alternative is to sail from New Zealand to

Hawaii via the Cook Islands by following the same time schedule.

For those who are determined to complete a circumnavigation of the Pacific, there is always the possibility of continuing a South Pacific cruise to the Far East. This is best accomplished by sailing from the Solomon Islands or Papua New Guinea to Guam and thence to Japan, with a possible detour to the Philippines and Hong Kong. The voyage can then be continued via the Aleutian Islands to Alaska, British Columbia, and beyond. Such an itinerary requires careful planning, so as to sail among the islands of the Far East at the most favourable time, but such a northern sweep can be accomplished although it will take longer than the return route via Tahiti and Hawaii.

Other itineraries for a return to the west coast have also been tried out, although far less successfully, because of the high proportion of head winds encountered on the way to Hawaii, particularly in the case of voyages starting from Micronesia. Many of these attempts had to be abandoned and those who managed to complete them vowed never to make such an error of judgement again. This is why the importance of properly planning a return voyage to the west coast cannot be emphasised strongly enough and the various alternatives outlined in these examples should be considered carefully, preferably before leaving home.

Voyage F: A round Atlantic voyage from Europe

Compared to the Pacific Ocean, a circumnavigation of the North Atlantic is much easier to accomplish and it is in fact a voyage undertaken every year by a large number of European sailors, who have time for only a one year offshore cruise or who complete the circle in various stages over several years returning home in between. Christopher Columbus was the first sailor to accomplish such an Atlantic circumnavigation and the following itinerary is largely based on his own voyage of 1492-3. The only significant change is the timing, as on his first transatlantic voyage Columbus sailed west during the hurricane season of summer and returned home too early in winter.

A late spring or summer start is recommended for those leaving from Northern or Western Europe, so as to cross the Bay of Biscay before the middle of August. Such timing allows some time

to be spent cruising the coasts of the Iberian peninsula before heading for the Canary Islands, either direct or via Madeira. The crossing of the Atlantic can be made in November or early December along the trade wind route, arriving in the Caribbean before the end of the year. The next four months can be spent cruising the islands of the Eastern Caribbean, preferably from south to north, so as not to cover the same ground twice. The return voyage to Europe should start in April or early May and usually includes a stopover in Bermuda, although a few people sail directly to the Azores. The Azores provide a convenient springboard in mid-Atlantic for a return passage to reach the home port in either Northern Europe or the Mediterranean almost one year after leaving. In fact the Atlantic circle can be accomplished in as little as eight months, especially if the point of departure is in Southern Europe. In such a case one can leave for the Canaries as late as October, cross the Atlantic in the second half of November, and return from the Caribbean the following April. Such timing is followed successfully every year by many boats taking part in the ARC, who incorporate this annual transatlantic event from Gran Canaria to St Lucia into their plans.

A major attraction of such an Atlantic circle for those who cannot take off all the necessary time in one block is the fact that the voyage can be broken up into several stages. The first stage is to sail the boat to a southern port at the beginning of summer. The boat can be left in a marina while the crew returns home by air. This stage can be extended to go as far as the Canaries, which ideally should be reached by August or early September. There are many excellent marinas in the Canaries where a boat can be left in safety and there are also frequent flights to all parts of Europe. If the boat is left for a while in Southern Europe, perhaps in Gibraltar or Vilamoura, the passage to the Canaries should not be left too late as every year boats miss the start of the ARC because of bad weather encountered on the way to the Canaries in late October or early November. Indeed there is no good reason to leave this section of the voyage to so late in the season.

Once the boat has reached the Caribbean in time for the Christmas holidays, those who have to return home temporarily can do so by leaving the boat in a safe marina, such as Rodney Bay in St Lucia, the finishing point of the ARC. There are frequent flights to Europe from St Lucia,

Martinique, Guadeloupe, Antigua, and Barbados, all of which are convenient places for crew changes. At the completion of the Caribbean cruise, the return passage to Europe must be contemplated. This can be done nonstop to the Azores or via Bermuda. If necessary, the trip can be broken in the Azores where the boat can be left in one of two excellent marinas, either in Horta or Ponta Delgada, both of which have direct flights to Lisbon. From the Azores, the sail back home can be done at any time during the summer.

Voyage G: A round Atlantic voyage from North America

A similar circumnavigation of the North Atlantic can also be undertaken from the east coast of either the USA or Canada. The best time for leaving is also late spring or early summer when Europe can be reached either direct or via the Azores. Such timing does not allow too much time to be spent in the more northern parts of Europe as one has to head south before the onset of the autumn gales. However, time can be spent in Portugal, Spain, Gibraltar, or Madeira before joining the other boats preparing the cross to the Caribbean from the Canaries. As described in the previous example, the Atlantic circle can be interrupted at several points should one need to return home for any length of time. The Azores provide a convenient stopover with two good marinas where a boat can be left in total safety and in summer there are direct flights to Boston from the island of Terceira. There are similar places where the voyage can be interrupted in both the Canaries and Caribbean, as mentioned earlier.

The return voyage from the Caribbean to ports on the east coast of North America offers far more choices than those available to European sailors. The quickest way is to sail directly to the east coast at the end of winter (April), either from the Virgins or one of the Lesser Antilles and to make landfall in one of the ports south of Cape Hatteras. Alternatively one can sail to Bermuda from where it might be easier to reach ports lying further north. Yet another possibility is to sail to Florida via the Bahamas and return home through the Intracoastal Waterway.

An extended Atlantic circumnavigation has taken shape in recent years with an increasing number of boats sailing from the Canary Islands to Brazil, either direct or via the Cape Verde Islands and West Africa. Such a detour usually adds another

year to the voyage, which from Brazil continues along the coast of South America to the Caribbean where it rejoins one of the routes mentioned above.

Rallies and races

Just as the wise navigator plans on being in the right place at the right time, so the organisers of various sailing events are timing their events to take place at a time when they can expect to attract the maximum number of cruising boats. The perfect example is the highly successful Antigua Sailing Week, which starts on the last weekend in April at the end of the sailing season in the Caribbean. For nearly three decades hundreds of yachts have congregated in Antigua at this time of year for one week of racing, and a lot of fun besides, before setting off for either Europe or North America.

Races such as the Antigua Sailing Week are now being held regularly in all the popular cruising areas or along the major cruising routes. Also in the Caribbean, the Heineken Regatta is held in St Maarten at the beginning of March every year. Across the world, in Thailand, the annual King's Cup Regatta is held in Phuket at the beginning of December at a time when scores of cruising yachts are congregating there waiting for the northeast monsoon to blow them across the North Indian Ocean. The King's Cup is preceded by the Raja Muda Cup, a cruising rally along the coast of Malaysia timed to bring the boats to Phuket in time for the King's Cup Regatta. The Raja Muda Cup caters mainly for cruising boats on a world voyage and there are now several events aimed at this floating community. One of the oldest established is the Darwin to Ambon Race, starting in July from the capital of Australia's Northern Territory. The main attraction of this annual event is that boats taking part in it automatically obtain the compulsory cruising permit for Indonesia. Many of the participants in the Darwin to Ambon Race will have taken part earlier in two similar events staged in the South Pacific. The annual South Pacific Regatta sets off from Auckland in May and is joined by boats which have spent the cyclone season in New Zealand and are returning to the tropical South Pacific as well as Antipodean sailors at the beginning of their cruises. Later in the season, the Musket Cove to Vila Race is joined by boats sailing from Fiji to Vanuatu.

There are many more examples of such events

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which are joined by cruising boats to reach a particular popular cruising destination. The various races from Newport, Rhode Island, to Bermuda are often joined by boats on their way to the Caribbean or Europe. Similarly, the Caribbean 1500 Rally is aimed squarely at North American boats sailing in November from the Chesapeake Bay area to the Virgin Islands. The inspiration for this event was the ARC (Atlantic Rally for Cruisers), which has been attracting over one hundred boats every year since it was launched in 1986. The ARC leaves the Canaries at the end of November and is joined by boats planning to reach the Caribbean before Christmas. The concept of the ARC was applied successfully to the first Round the World Rally,

EUROPA 92, which took place in 1991-2. Following the success of that first rally the event is now held every three years.

When planning a voyage it may be worth keeping in mind some of the above events, whether to enjoy a week of racing in a particularly beautiful area or take advantage of the safety in numbers as well as the competitive spirit of such offshore events. Just as attractive can be the help one gets in dealing with local authorities when arriving in some countries as part of such an international event. Keeping track of when and where such events take place can be useful both for those intending to join and to those determined to avoid the crowds!

3

WINDS AND CURRENTS OF THE WORLD

Ever since man first ventured offshore in craft powered by the wind, he has looked for patterns in the wind's behaviour. Such observations may have led the early fishermen to use an offshore breeze to take their canoes to favourite fishing spots in the morning and the onshore breeze to waft them home later in the day. These patterns are still used in some parts of the world where fishermen continue to use sailing craft as their forefathers have done over countless generations. Discovering a similar regularity for offshore voyaging was more difficult and some remote places in the world might have remained unpopulated until much later if early voyagers had been able to find a favourable wind to return home. The fact that there was a regular pattern to the winds was already recognised in ancient times and seasonal sailing routes were a common feature in the ancient world. The Chinese established such routes in the Far East, the Greeks used them in the Aegean, the Polynesians were helped by them to colonise the far flung islands of the Pacific, the Papuans are still following the traditional Kula route with the help of seasonal winds, while Arab traders used the monsoons of the Indian Ocean to establish a regular link between India and East Africa.

This reliance on favourable winds for most offshore voyages lasted until the last century, when the greatly improved windward going capabilities of sailing ships freed their masters of the shackles imposed by having to follow a route governed by the wind alone. However, in spite of being able to sail closer to the wind, neither did the masters of the old clippers nor do the skippers of modern yachts enjoy battling against head winds, and most would still make a detour to pick up a fair wind. Even in a well designed yacht it is often wiser to cover a longer distance with better winds than to

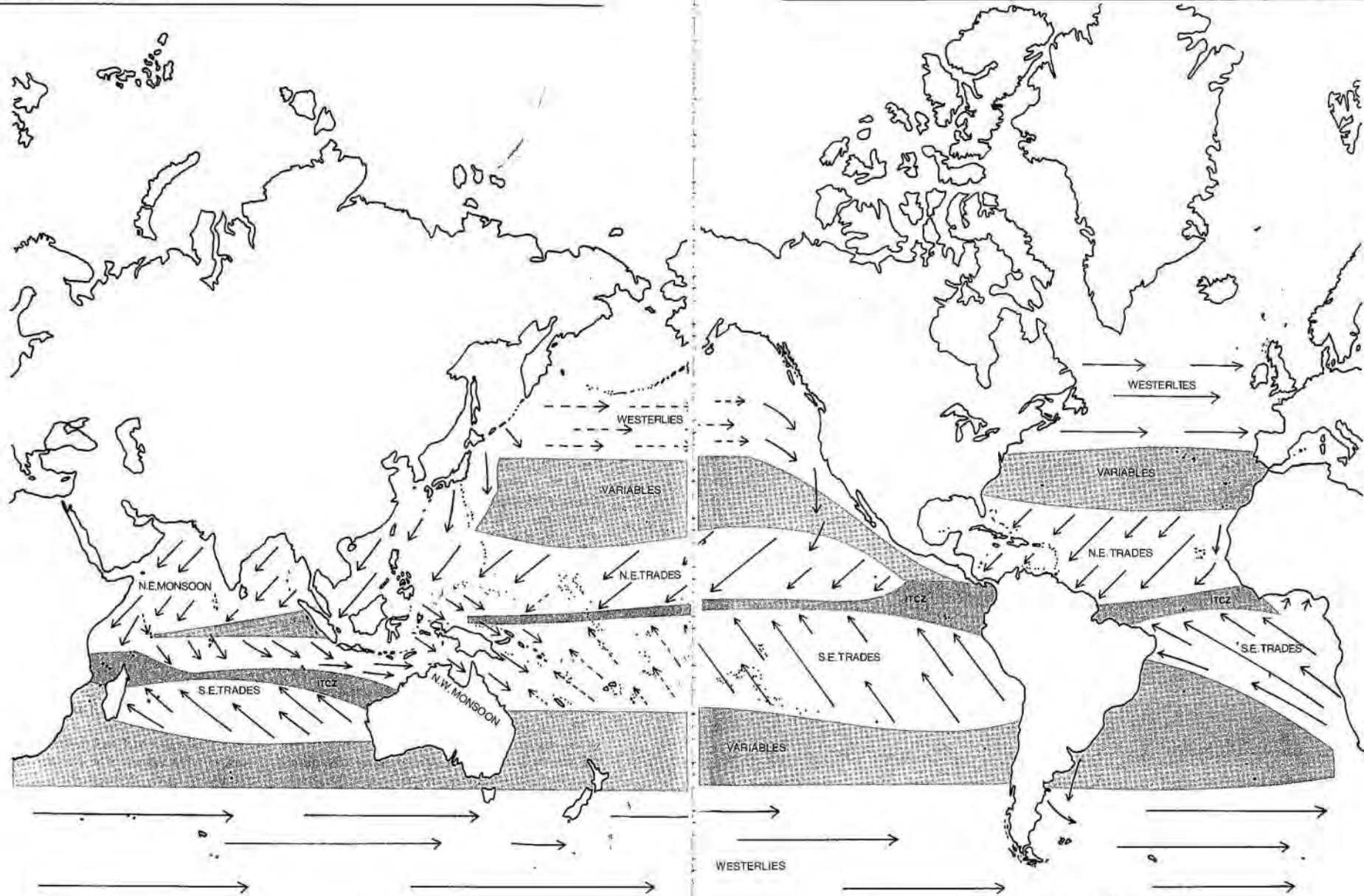
stubbornly try to follow the direct route between two points. This is the reason why it is so important to understand the prevailing wind systems of the world, which dictate most of the cruising routes described in the following pages.

The importance of defining the prevailing winds in certain areas of the world was already recognised by the Portuguese and Spanish navigators of the fifteenth and sixteenth centuries, and their findings were kept a closely guarded secret for a long time. The first transatlantic voyage by Christopher Columbus showed his followers that a detour to the south was the best route to the newly discovered islands of the Caribbean, whereas a northerly sweep was to be preferred for the return voyage to Europe. Similarly in the Pacific, Magellan and other early navigators demonstrated that the voyage from east to west across the South Pacific was a relatively easy matter if one stayed within the southeasterly trades. However, a return voyage against the same trades proved impossible until finally the Spanish navigator Urganeta discovered the westerly winds of higher latitudes, which came to be called the anti-trades or passage winds.

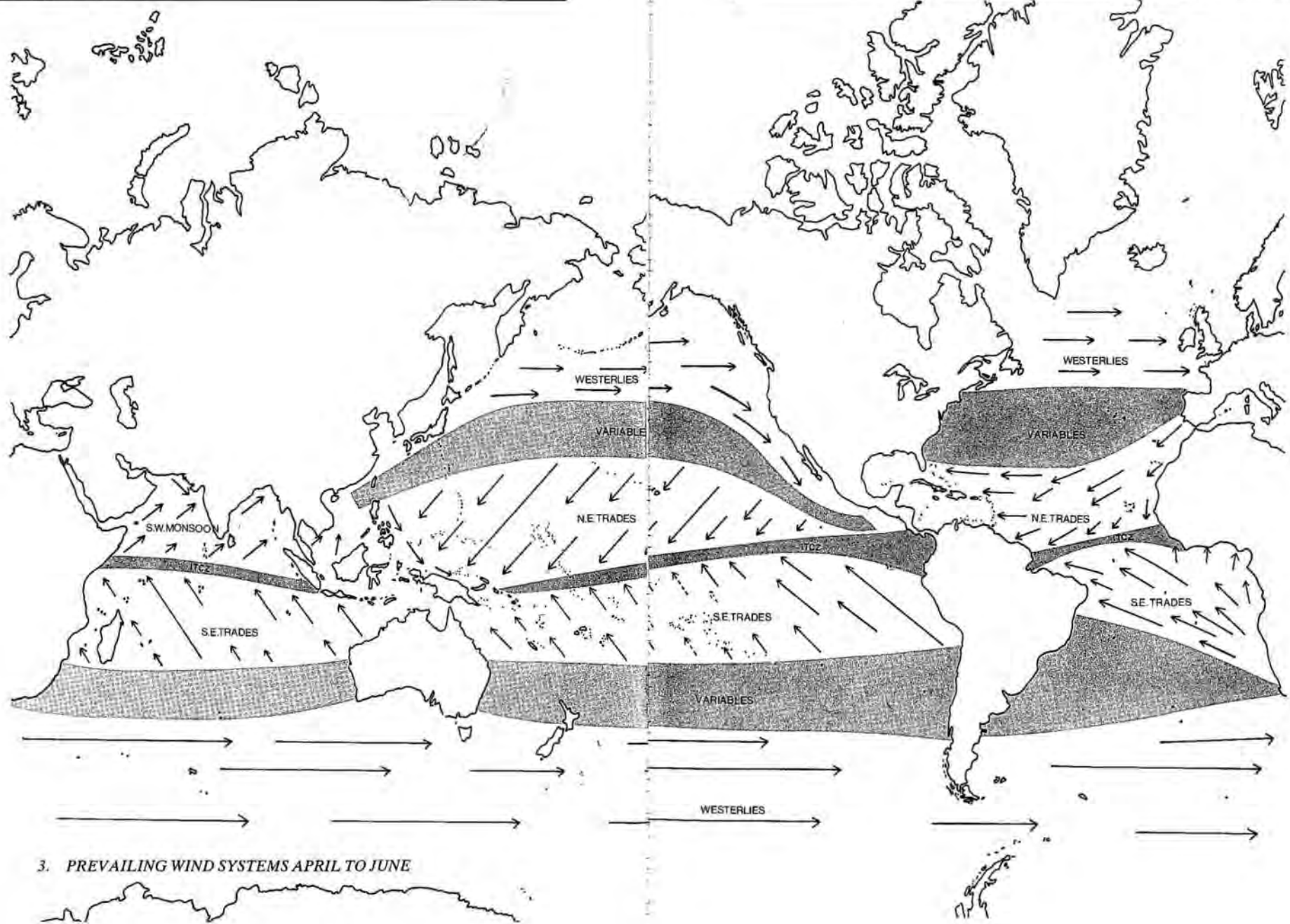
This worldwide wind pattern has thus been known for a long time and countless navigators have made use of this knowledge over the centuries. In his *Memoir of the Northern Atlantic Ocean*, published in its 13th edition in 1873, Alexander George Findlay succinctly describes this wind pattern in the following words:

It has been well observed that the wind systems of our globe naturally govern the tracks of ships crossing the oceans, the trade winds carrying them from East to West within the tropics, while anti-trade or passage winds

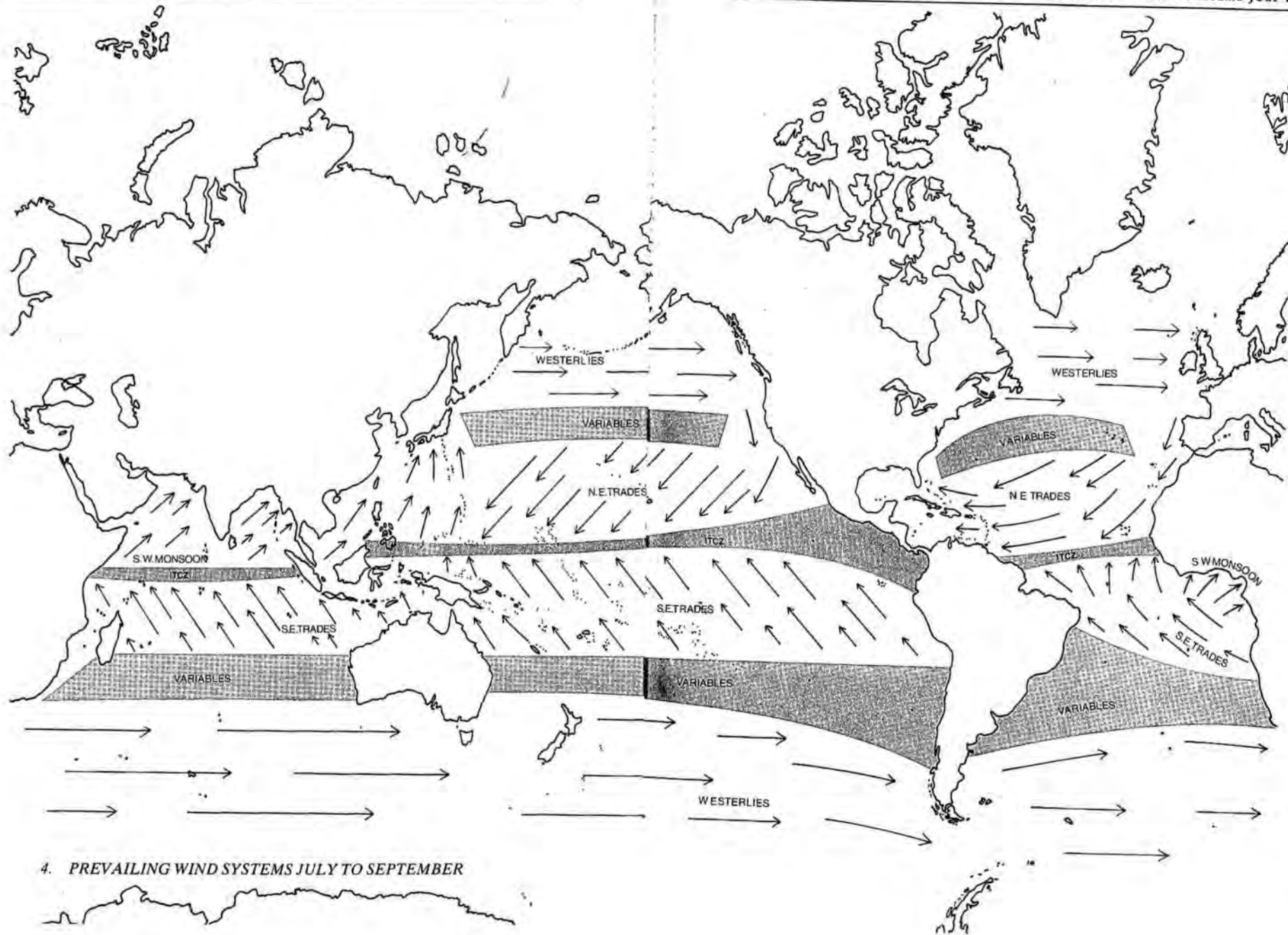
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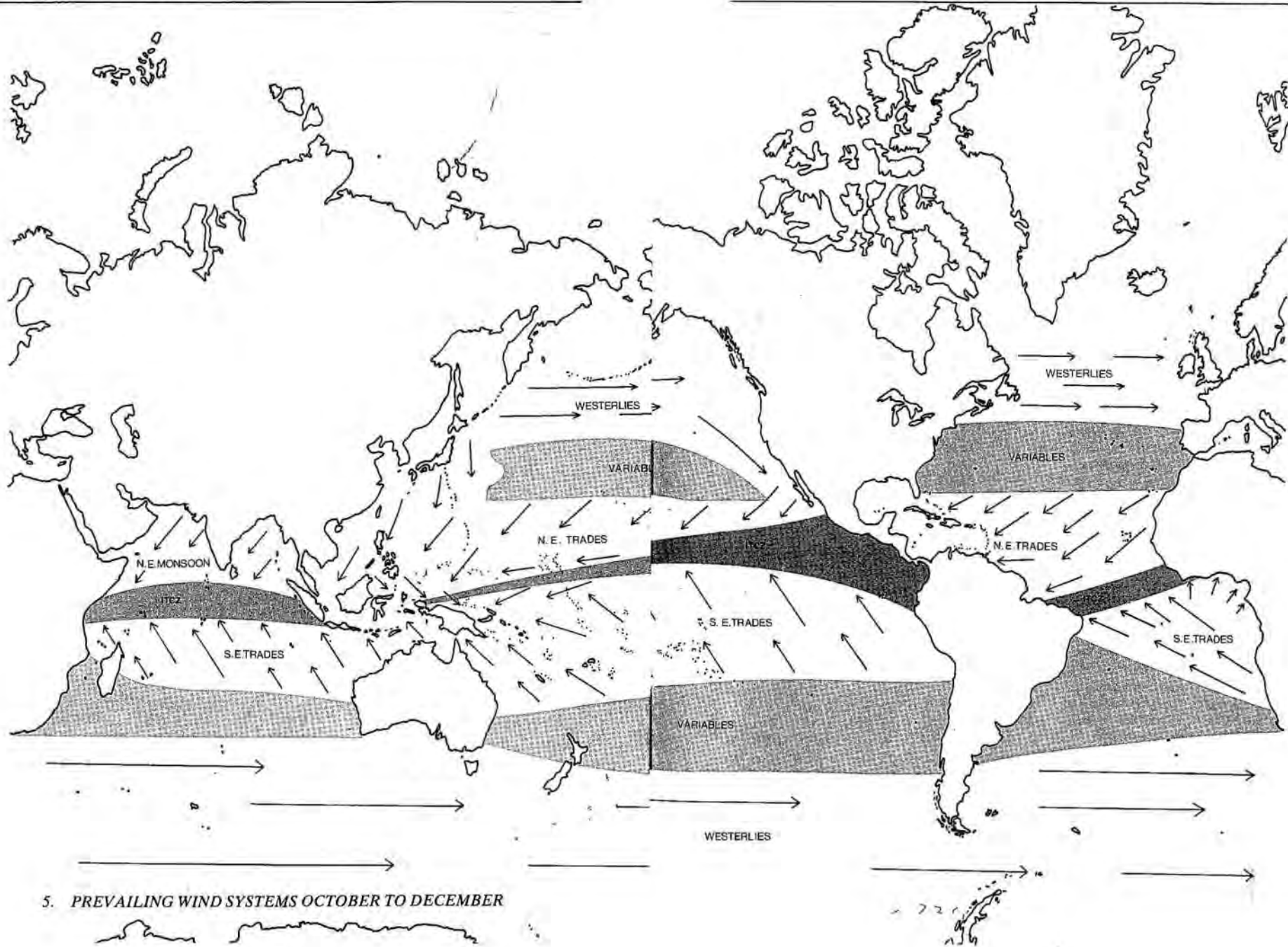
2. PREVAILING WIND SYSTEMS JANUARY TO MARCH



3. PREVAILING WIND SYSTEMS APRIL TO JUNE



4. PREVAILING WIND SYSTEMS JULY TO SEPTEMBER



5. PREVAILING WIND SYSTEMS OCTOBER TO DECEMBER

will bring them back again eastward beyond the tropics. If it were not for the intervening belt of calms, sailing directions for vessels going into opposite hemispheres would be of the simplest kind; but the well-known Equatorial embarrassments - "the doldrums" - generally make a very different matter of it, and cause many considerations to enter into the problem of shaping a course.'

The three main factors that influence the formation and direction of the wind are atmospheric pressure, air temperature, and the rotation of the earth. The primary cause of wind is a difference of temperature. This in its turn leads to a difference in atmospheric pressure mainly because of the tendency of warm air to rise, which is then replaced by cold air drawn from elsewhere. Air also tends to flow from an area of high pressure to one of low pressure. Permanent areas of high pressure are situated between approximately the latitudes of 20° and 40°, both north and south of the equator. On either side of these cells of high pressure there are areas of low pressure. If it were not for the rotation of the earth, the wind direction would be either north or south, from an area of high pressure to one of low pressure, but because the earth is rotating on its axis in an easterly direction, air which is drawn towards a centre of low pressure is deflected to the right in the northern hemisphere and to the left in the southern one. The result of this movement in the northern hemisphere is the anti-clockwise circulation of wind around a low pressure area and the clockwise rotation of wind around a high pressure area. The opposite is the case in the southern hemisphere, where the wind circulates in a clockwise direction around a low pressure area and in an anti-clockwise direction around a high pressure area.

Diagrams 2 to 5 show the way in which winds on the equatorial side of the high pressure belts blow towards the equator from a NE direction in the northern hemisphere and from a SE direction in the southern hemisphere. North and south of those areas of high pressure the winds in both hemispheres are predominantly westerly.

In many areas these systems are distorted by land masses, which are subjected to more pronounced differences of temperature and barometric pressure than the oceans. The wind systems are also affected by the seasons, since the annual movement of the sun causes the areas of high pressure to move towards the poles in the summer. Because of this movement, the wind systems associated with these areas of high pressure, particu-

larly the trade winds, tend to travel a few degrees south or north with the sun.

Trade winds

These steady winds which blow on either side of the equatorial doldrums were so called because of the assistance they gave to the trade of sailing ships. The early Spanish navigators gave them the more romantic sounding name of *alisios*. These regular winds are usually NE in the northern hemisphere and SE in the southern hemisphere. They rarely reach gale force and on average blow at force 4 to 5. The weather associated with the trade winds is usually pleasant, with blue skies and fluffy cumulus clouds. The barometric pressure within the trade wind belt is steady, interrupted only by a pressure wave, which causes a slight rise and fall of the barometer every 12 hours. If the diurnal movement of the barometer ceases, or if it is very pronounced, a tropical disturbance can be expected. The entire trade wind belt, including the doldrum zone that lies between the two systems, moves north and south during the year. This movement is influenced by the movement of the sun, although there can be a delay of up to two months between the movement of the sun itself and that of the doldrums. The trade winds are less steady in the vicinity of the Intertropical Convergence Zone.

Intertropical Convergence Zone

This area of low barometric pressure lying between the trade wind regions of the two hemispheres is known as the Intertropical Convergence Zone (ITCZ), the equatorial trough, or more commonly as the doldrums. The winds in this area are either light or nonexistent and the weather is sultry and hot. The only interruptions are occasional squalls and thunderstorms, when rain can be very heavy. The extent of the doldrums varies greatly from year to year and season to season. Although the doldrums have earned their bad reputation because of the frequent calms that could delay ships for days on end, doldrum weather can sometimes be particularly unpleasant, with violent squalls and raging thunderstorms. Weather in the doldrums tends to be worse when the trade winds blow at their strongest.

Variable winds

A zone of light and variable winds extends on the

polar sides of the trade winds, corresponding more or less with the high pressure areas of the two hemispheres, between latitudes 25° and 35° approximately. These zones were given the name of Horse Latitudes, because sailing ships that were becalmed in these areas were sometimes forced to kill the animals on board due to the lack of drinking water.

Westerly winds

The higher latitudes of both hemispheres have a large proportion of westerly winds, which prevail north and south of latitude 35°. Westerly winds are stronger and more predominant in the southern ocean, where they often blow with gale force from the same direction for several days. Because of the more extensive land masses in the northern hemisphere, the westerlies of the northern oceans are lighter and less consistent.

Monsoons

Seasonal winds are experienced in several areas of the world, the name monsoon deriving from the Arabic word meaning 'season'. Such winds blow consistently from one direction for one season and after a short interruption blow with equal consistency from the opposite direction. The most important regions affected by such seasonal winds are the Indian Ocean and West Pacific Ocean.

Depressions

A depression is an area of low barometric pressure, which is usually responsible for periods of unsettled weather, although not all depressions are accompanied by strong winds. Depressions occur most frequently in middle and higher latitudes, although the most severe storms encountered at sea are those formed in the low latitudes and of a revolving nature, discussed in the next section.

As stated earlier, winds in the northern hemisphere blow around low pressure areas in an anti-clockwise direction, while in the southern hemisphere the direction is clockwise. Most depressions move in an easterly direction, a few moving in other directions at times. The speed at which they move can vary from very little to 40 knots or more. Usually depressions last about four to five days and their movement gradually slows down as they fill and the pressure rises.

The strength of the wind generated by a depres-

sion is dictated by the closeness of the isobars, which can be seen on a synoptic chart as lines joining areas of equal barometric pressure. The closer the isobars lie together the stronger the wind. The approach of a depression is always indicated by a falling barometer and usually by a change in the aspect of the sky and cloud formation. It may be worthwhile studying this aspect of meteorology, so as to be able to predict the kind of wind and weather to expect both on passage and in port.

Tropical squalls

This is a common phenomenon encountered in the tropics, especially below latitude 20°. These linear disturbances travel from east to west at 20-25 knots and are usually perpendicular to the direction of the prevailing wind. They are accompanied by thundery and squally weather. The first indication of an approaching line squall is a heavy band of cumulo-nimbus to the east. The wind is usually light or calm and the atmosphere oppressive. As the cloud approaches it becomes dark and menacing with occasional thunder and lightning. The bottom of the cloud has the appearance of a straight line but it sometimes changes to an arch as it passes overhead. Suddenly there is a blast of wind from an easterly direction, which on average rises to 25-30 knots, although occasionally it can be much stronger. Shortly after the blast of wind, it starts to rain heavily. Such squalls last on average about half an hour, although sometimes they may last longer. The barometer does not indicate their approach, therefore they can only be detected visually, although they also show up on radar. As some of these squalls can be quite vicious, it is prudent in squall prone areas to reduce sail at night, when their approach is more difficult to detect. In the North Atlantic, line squalls occur especially at the beginning and end of the rainy season (May to October) and are particularly violent near the African coast. In the South Pacific squalls can occur at all times, although as a rule they are not as violent as the North Atlantic variety. Line squalls are less of a problem during the NE monsoon of the North Indian Ocean, but can be violent during the opposite SW monsoon.

Tornadoes

Tornadoes and waterspouts occur in the same areas and during the same season as tropical storms.



6. WORLD DISTRIBUTION OF TROPICAL STORMS



They usually travel in the same direction as the prevailing wind and their approach can normally be seen, especially as they rarely form at night. The wind generated by a tornado can be extremely violent, but as the actual area covered is very small, the likelihood of being hit by such a whirlwind at sea is quite remote. Waterspouts sometimes occur during afternoon thunderstorms in the vicinity of the coast, the ocean side of Chesapeake Bay being particularly vulnerable during the summer months.

Tsunamis

These are large waves caused by an earthquake which can occur thousands of miles from the place where the destructive effects of the gigantic wave will be felt. Tsunamis occur mostly in the Pacific Ocean, and ports both on the continent and islands have been hit by tsunamis during the twentieth century. There have been six destructive tsunamis in Hawaii in the last 50 years. The most recent major tsunami occurred in 1960 causing great destruction in Hilo where over 60 people lost their lives. Boats are better off at sea in deep water, preferably over 100 fathoms, where the effect of a tsunami will pass almost unnoticed.

Tropical revolving storms

Tropical revolving storms are the most violent storms that can be encountered at sea and it is both prudent and wise to try and avoid the areas and seasons where such storms occur. The extremely strong winds generated by these storms and the huge seas they raise can easily overwhelm a small boat. Depending on which part of the world they occur in, these storms are known as hurricanes, cyclones, typhoons, or willy-willies. They blow around an area of low pressure, the rotation being anti-clockwise in the northern hemisphere and clockwise in the southern hemisphere. The wind does not move around the centre in concentric circles but has a spiral movement, being sucked in towards the core of the storm.

Usually these storms occur on the western sides of the oceans, although they are also found in other parts of the world. They usually form between latitudes 7° and 15° on either side of the equator, but there have been many instances when tropical storms formed closer to the equator. The breeding ground of tropical storms is the intertropical

Convergence Zone, where the two opposing trade wind systems converge. Under certain conditions of barometric pressure, temperature, and moisture, the resulting whirlpool of air created at the point of convergence can develop into a severe tropical revolving storm. The most dangerous areas affected by such storms are the western North Atlantic from Grenada to Cape Hatteras, the western North Pacific from Guam to Japan, the South Pacific from the Marquesas to the Coral Sea, the north and northwest coasts of Australia, the southwest Indian Ocean, and the Bay of Bengal. In some of these areas tropical storms occur several times a year, while others are only hit about once every ten years.

In addition to their circular motion, tropical revolving storms also have a forward movement. In the northern hemisphere the movement is initially WNW, storms recurving gradually to the N and NE as they reach higher latitudes. In the southern hemisphere the initial movement is WSW, storms recurving to the SE as they approach latitude 20°S. Sometimes a storm does not recurve but continues in a WNW direction in the northern hemisphere, or a WSW direction in the southern hemisphere, until it hits the continental landmass where it gradually breaks up after causing much damage. Occasionally the storm meanders erratically and its direction is often impossible to predict with certainty. The speed at which a storm is moving is normally about 10 knots in the early stages and accelerates after recurving.

Any boat lying in the path of a storm, particularly its centre, will be in serious danger. The wind remains constant in direction until the eye has passed, then, after a brief calm, the wind returns from the opposite direction, possibly with greater violence, creating rough and confused seas or putting vessels at anchor on a dangerous lee shore. Every storm has two sides, or semicircles, known as the navigable semicircle and the dangerous semicircle. In the northern hemisphere, the dangerous semicircle is the half of the storm lying on the right hand side of the track in the direction in which the storm is moving. In the southern hemisphere, the dangerous semicircle is on the left.

The detection and tracking of tropical storms has greatly improved since the advent of weather satellites. Stations WWV in Fort Collins, Colorado and WWVH in Kauai, Hawaii, broadcast hourly reports of tropical storms, their coordinates, speed of movement and wind strength. Tropical

storm warnings for the Atlantic Ocean are broadcast at 8 minutes past each hour by WWV on 2.5, 5, 10, 15, and 20 MHz. Warnings for the Pacific are broadcast by WWVH at 48 minutes past the hour on 2.5, 5, 10, and 15 MHz. From the information obtained from these stations it is possible to plot the course of an approaching storm and take the best avoiding action. The path of the storm in relation to the vessel's latest position will show the degree of danger. If one is at sea, the best course of action is as follows:

Northern hemisphere

When facing the wind, the centre of the storm will be between 90° and 135° on the right of the observer. If the wind veers, i.e. shifts to the right, the boat is in the right hand semicircle which is the dangerous semicircle. A backing wind is associated with the navigable semicircle. If the direction of the wind is constant, its strength increases and the barometer falls, the boat is exactly in the path of the storm. If the direction of the wind is not changing, but its strength decreases while the barometer slowly rises, the boat is directly behind the centre.

The generally accepted tactic for vessels caught in the path of a tropical storm is to run off on the starboard tack by keeping the wind on the starboard quarter. The same tactic should be applied if the boat is in the navigable semicircle when one should try and follow a course at right angles to the assumed track of the storm. Depending on the boat's behaviour in a quartering sea, one should try and either run under bare poles or storm jib. If the boat is in the dangerous semicircle one should heave to on the starboard tack or, if possible, sail close hauled on the same tack, with the object of moving away from the storm centre.

Southern hemisphere

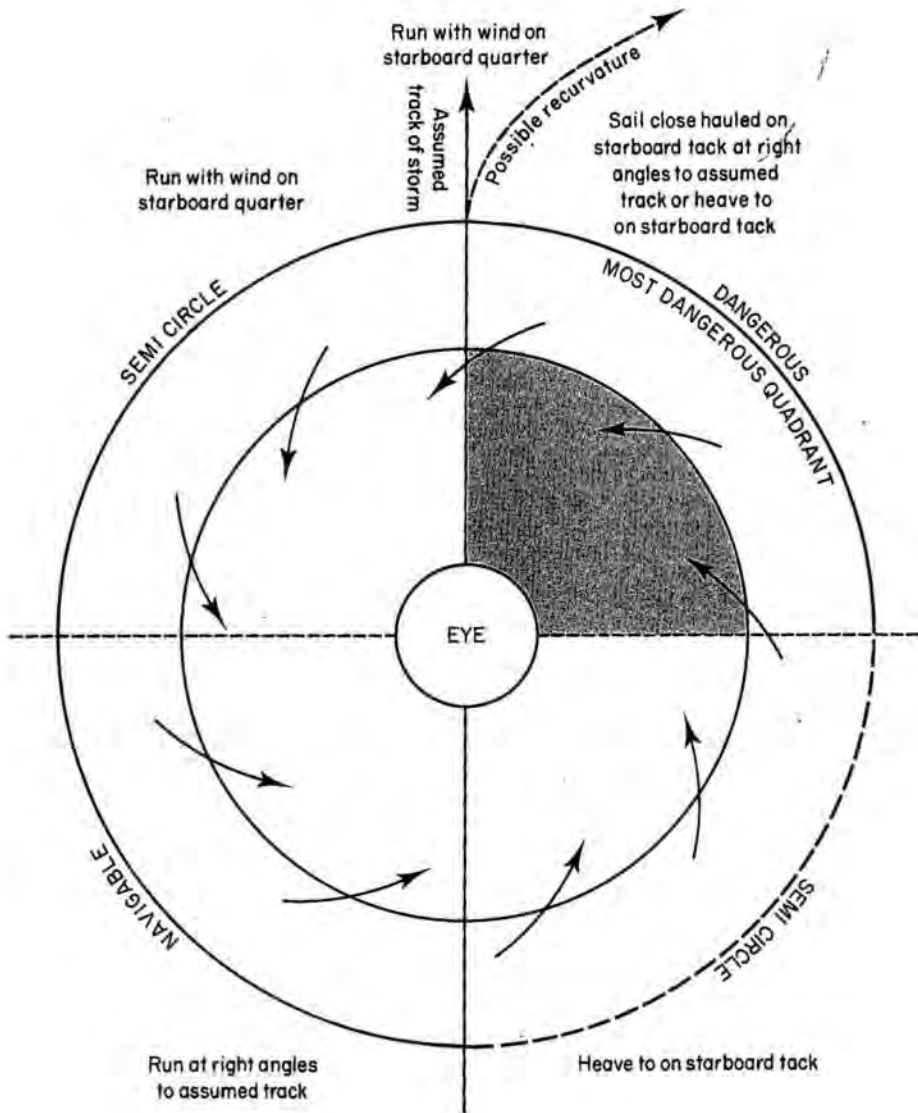
South of the equator, the centre of a tropical storm is between 90° and 135° on the left of the observer. If the wind is backing, the boat is in the dangerous semicircle; if it veers, the boat is in the navigable semicircle. The vessel is directly in the path of the storm if the wind is constant in direction. An increasing velocity combined with a falling barometer means that the boat is in front of the storm, a decreasing wind speed and a rising barometer means that the observer is behind the centre.

The best tactic if one is directly in front of the storm is to run with the wind on the port quarter.

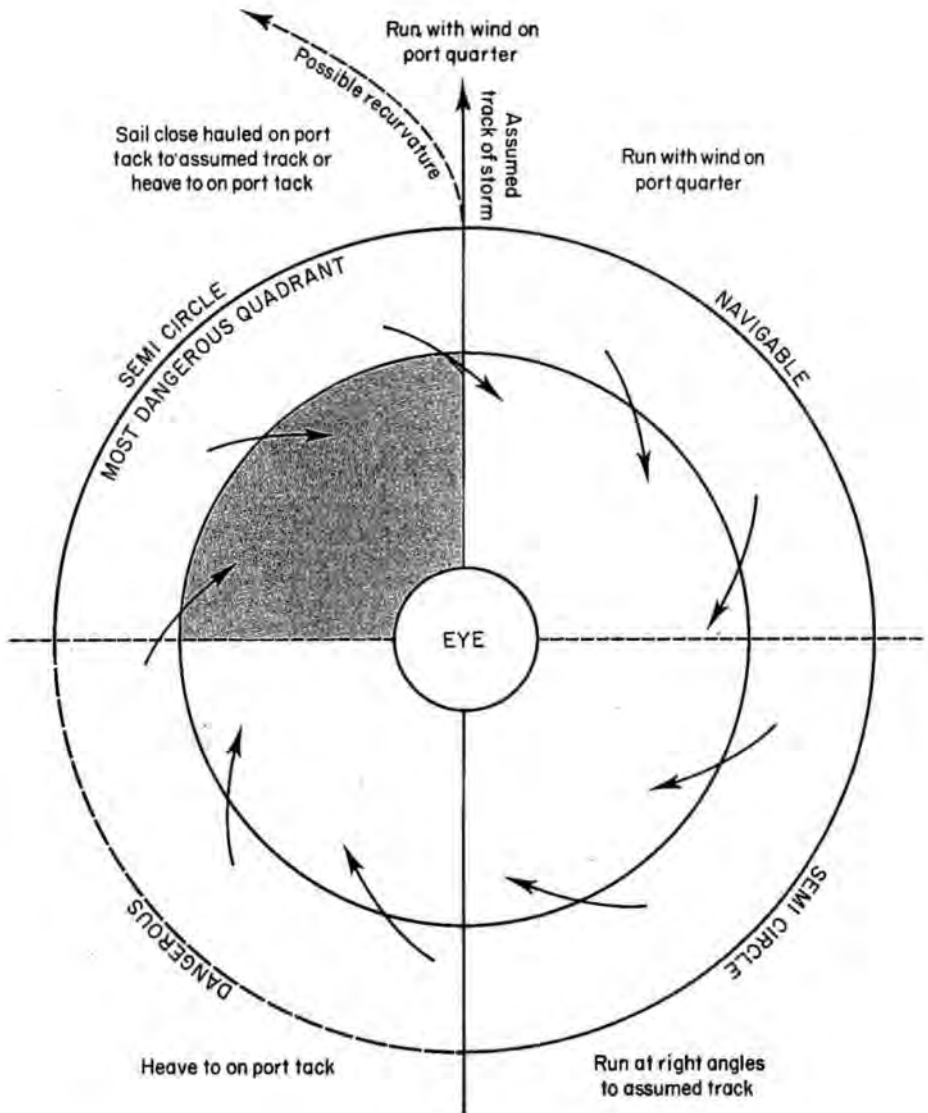
The same tactic should be applied if the boat is in the navigable semicircle, by trying to run away from the storm at right angles to its assumed track, also with the wind on the port quarter. If the boat is in the dangerous semicircle, one should try and sail close hauled on the port tack so as to proceed away from the storm centre. If this is not possible, the boat should heave to on the port tack.

Although these general rules are applicable in most situations, there can be circumstances when they should not be followed without question. Tropical storm strategy depends on many factors, such as the lack of sea room or the behaviour of a particular boat when hove to in strong winds or running before big quartering seas. Such considerations will dictate a different approach to the problem and there is unfortunately no fast rule that can be applied at all times. There is no doubt that the safest course of action is to avoid altogether the areas where tropical storms are likely to occur. Therefore the most important consideration when drawing up plans for a voyage is to make sure that the boat will not be in an area affected by tropical storms during the dangerous season. If one plans to pass through an area which is never entirely free from tropical storms, one should attempt to sail during the months of lowest frequency. Such a strategy is not too complicated to follow and many boats have spent several years cruising in the tropics without ever being in the wrong place at the wrong time, simply by leaving the hurricane zone during the dangerous season and returning at the end of it. The directions given for various cruising routes mention the hurricane prone months, so that these can be avoided when planning a cruise along those routes.

Tropical storms are most frequent during the late summer or early autumn in both hemispheres. The safe season in the northern hemisphere is from mid-November to mid-June, whereas the safe season for the southern hemisphere lasts from about May until mid-November. The only tropical area entirely free of hurricanes is the South Atlantic. In the Western North Pacific no month is considered to be entirely safe, although typhoons are extremely rare in winter. In the Coral Sea, extraseasonal cyclones are not uncommon and have been recorded as late as June and even July. In the Arabian Sea cyclones do not occur in summer, but at the change of the monsoon, either in May-June or in October-November. Diagram 6



7. TROPICAL STORM TACTICS
NORTHERN HEMISPHERE



**8. TROPICAL STORM TACTICS
SOUTHERN HEMISPHERE**

WINDS AND CURRENTS OF THE WORLD

shows the world distribution of tropical storms and the months when they are most likely to occur.

It is not uncommon for tropical storms to

develop outside the official seasons and the early part of the safe season should be treated with caution. World tropical storm seasons follows:

Area	Season	Highest frequency
West Indies	June to November	September
NE Pacific	May to November	July-September
NW Pacific	All year	July-October
Bay of Bengal	May to December	October-November
Arabian Sea	April to December	April-May October-November
S Indian	November to May	December-March
S Pacific	November to April	January-March

Prevailing winds

Prevailing weather conditions will be described in greater detail when dealing with regional routes, but it may be useful to summarise here the wind patterns of the principal six areas of the world as they appear on diagrams 2 to 5.

North Atlantic: The NE trade winds blow roughly between latitudes 2°N and 20°N to 25°N in winter, between 10°N and 30°N in summer. In the northern part of the ocean, the winds are predominantly W becoming SW near the North American coast. Between the trade wind and westerly wind belts there is an area of variable winds.

South Atlantic: The SE trade winds cover a wide belt roughly from the equator to 30°S during the southern summer. They move north during winter (July) when they are found between 3°N to 5°N and 25°S. There are virtually no doldrums south of the equator. Constant westerly winds are to be found in higher latitudes, but they tend to become NW and even N on the South American side of the ocean, especially during summer.

North Pacific: During the summer months the NE trade winds blow between latitudes 12°N and 30°N, but move down to an area comprised between latitudes 4°N or 5°N and 25°N in winter. Between latitudes 35°N and 55°N the winds are W or NW. The doldrums are less well defined.

South Pacific: The SE trades are less constant and reliable than in other oceans. At the height of winter (June to August) they blow in a belt stretching approximately from 5°N to 25°S. During the southern summer the trade winds are even less constant and blow south of the equator as far as latitude 30°S. Westerly winds blow consistently south of 30°S in winter and 40°S in summer.

North Indian: The winds are dominated by the two monsoons, NE in winter (November to March) and SW in summer (May to September). The NE monsoon becomes well established in January and it is most consistent until early March. The winds are much stronger during the SW monsoon, at the height of which in July and August they often blow at over 30 knots.

South Indian: The SE trade winds extend from the equator to latitude 25°S in winter (July). During the southern summer (January), the SE trade winds can be found between about 10°S and 30°S, the NE monsoon also makes itself felt south of the equator possibly as far as 10°S, but is deflected by the rotation of the earth and becomes the NW monsoon. To the south of the SE trade wind belt there is a zone of variable winds. The higher latitudes are known for their strong westerly winds.

Currents of the world

Currents occur at all depths of the oceans, but the only ones of real interest to the small boat voyager are the surface currents. Because the main cause of surface currents is the direction of the wind, there is a close relationship between their direction and that of the prevailing wind. Constant winds, such as the trade winds, create some of the most constant currents, although these do not always follow exactly the direction of the wind that has generated them. As in the case of the winds, the rotation of the earth has an effect on currents too and therefore in the northern hemisphere currents tend to flow to the right of the direction of the wind, in the southern hemisphere to the left. This is the reason why in the northern hemisphere the currents flow in a clockwise direction, while in the southern hemisphere currents generally tend to follow an anti-clockwise direction. Currents will be described in more detail in relevant routes.

4

WINDS AND CURRENTS OF THE NORTH ATLANTIC

The Northeast trade winds

The NE trade winds extend in a wide belt north of the equator reaching from the west coast of Africa to the Caribbean Sea. They blow for most of the year on the south side of the anti-cyclone which is situated in about latitude 30°N, commonly known as the Azores high. The northern limit of the trade winds is around latitude 25°N in winter and 30°N in summer, although the constancy of the trade winds cannot be relied on near their northern limits. Therefore when making a transatlantic passage it is advisable to be certain the trade winds are reached before turning west.

The constancy of the trade winds improves during the winter months as does their strength. Although the average strength of these winds is force 3-4, it is not uncommon for them to reach force 6 and even 7 during January to March. The trade winds tend to be lighter and less consistent in summer, which is also the hurricane season. They have more of a northerly component in the eastern part of the ocean and become increasingly easterly in the Caribbean.

The consistency and reliability of the NE trade winds is of particular interest to those who intend to make a transatlantic voyage along the classic route starting in the Canaries. Although the winter months are reputed to have the most consistent winds, there are years in which these winds are found in lower latitudes than normal and it is not unusual for boats to cover almost half the distance to the Caribbean before falling in with steady winds.

Also described as trade winds are the

Portuguese Trades which blow from between NE and NW off the western coast of the Iberian peninsula from April to September or October. Another regional variation of the NE trade winds is the *harmattan*. This is a hot and dry wind, created by the NE trade winds blowing over the deserts of Africa and reaching the sea laden with dust. Around latitude 20°N it is encountered only in the vicinity of the African coast, but as one moves further south, the *harmattan* can be experienced farther offshore, covering boats in a fine reddish dust and reducing visibility. This easterly wind normally occurs between November and February.

Another regional phenomenon associated with the area which is normally under the influence of the NE trade winds are northers. During the winter months vast anti-cyclones develop over the North American continent occasionally reaching as far as the Gulf of Mexico. A strong northerly flow of cold air develops ahead of this area of high pressure, and becomes a violent norther which is sometimes felt as far away as the Caribbean. The progress of a norther is usually checked by the higher islands of Hispaniola and Cuba, but to the north of these islands it can be particularly dangerous, mainly because of the steep seas which are created when a strong norther hits the north flowing Gulf Stream. The approach of a norther is usually heralded by a heavy bank of cloud on the N or NW horizon.

Intertropical Convergence Zone

The extent of the trade winds at all times of the

year is influenced by the position of the Intertropical Convergence Zone (ITCZ) or doldrums. The ITCZ stays north of the equator throughout the year, although its position varies greatly, mainly in accordance with the seasonal movement of the sun, but also on a diurnal basis. The width of the doldrums is also variable and averages between 200 and 300 miles, although it tends to be wider near the African coast and narrower near Brazil. The weather inside the doldrum belt is more turbulent in the wider eastern region than in the west, with frequent squalls and thunderstorms occurring.

Southwest monsoon

The heat generated by the landmass of Africa during the summer lowers the barometric pressure over that area and causes the ITCZ to be deflected towards the north. The SE trade wind of the South Atlantic is thus drawn across the equator and arrives off the coast of Africa as the SW monsoon. It lasts from June to October between the equator and latitude 15°N, but in the Gulf of Guinea light SW winds prevail throughout the year.

Variables

A band of variable winds extends across the Atlantic to the north of the NE trade winds. This is the area of high atmospheric pressure which straddles the 30th parallel, being situated slightly to the north of it in summer and to the south in winter. The winds in the eastern half of this area are usually northerly and can be regarded as an extension of the trade winds. In the western part of the ocean the winds are often very light and long periods of calms can be expected. This is the area of the Horse Latitudes and the feared Sargasso Sea where sailing ships used to be becalmed for weeks on end.

Westerlies

Westerly winds predominate in the northern part of the Atlantic Ocean, where the weather is often unsettled, mainly due to the almost continuous passage of depressions that race across the ocean in an easterly direction. The winds in these higher latitudes are less constant in direction than those of the Roaring Forties of the Southern Ocean, although the predominant direction is westerly.

Hurricanes

A large area of the western North Atlantic is affected by tropical revolving storms, which can occur theoretically at any time, as hurricanes have been recorded over the last few centuries in every month of the year, although extremely rarely in some months. The normal hurricane season is from late May until early December, the highest frequency occurring from August to October, with a lower number occurring in the rest of the season. September has the highest frequency, with an average of two hurricanes per month over a period of 100 years, although in some years the number of hurricanes recorded in September was much higher. In fact both the frequency and intensity of hurricanes varies greatly from year to year, some years being extremely bad with up to 15 hurricanes, while other years go by with hardly any being recorded. A West Indian rhyme describes the season as follows:

*June too soon,
July standby,
August look out you must,
September remember,
October all over!*

Most hurricanes are born in the doldrum area west of the Cape Verde Islands. They usually travel west towards the Caribbean, their tracks moving clockwise around the perimeter of areas of high pressure. The area most affected by hurricanes is the Caribbean Basin, particularly the northern part of the Lesser Antilles, the Virgins, Bahamas, Bermuda, the Gulf of Mexico, and Florida. At the beginning and end of the hurricane season, these storms sometimes develop in the Western Caribbean, from where they move in a northerly direction mainly affecting the southern states of the USA. The later months of the season are particularly dangerous for those sailing in the Caribbean, as September and October hurricanes usually develop locally and warnings are shorter. Therefore if one intends to sail in the Caribbean during the hurricane season, especially among the Lesser Antilles, it is safer to plan to be there at the beginning of the hurricane season (May to June) rather than towards its end (October to early November). The high frequency months of August and particularly September should be avoided altogether. A useful tip concerning West Indian hurricanes is that if during

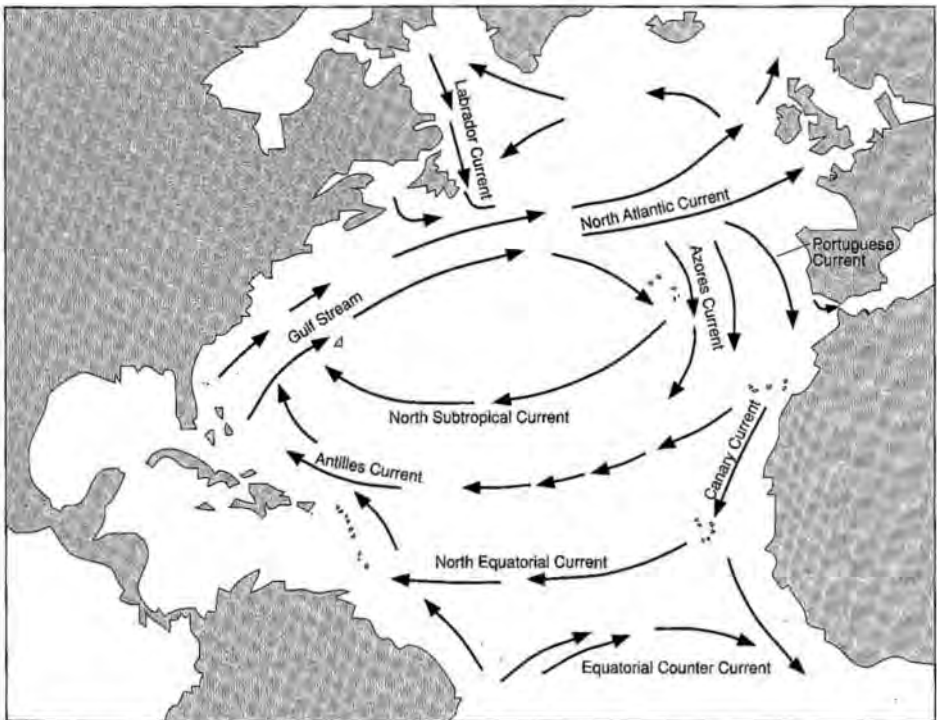
May, June, and July the wind remains above average strength, the rainfall below average, and the humidity also low, less than two hurricanes can be expected to hit the Eastern Caribbean during August and September.

Currents

The currents of the North Atlantic are part of a vast clockwise moving system that occupies the entire ocean south of latitude 40°N. The NE trade winds create the North Equatorial Current, which sets westward from the Cape Verde Islands to the Caribbean. Running to the north of it is the weaker North Subtropical Current. Part of the North Equatorial Current sets into the Caribbean Sea, while another branch flows northward along the Lesser Antilles and is known as the Antilles Current.

The mainspring of the North Atlantic circula-

tion is the Gulf Stream, which in spite of its name does not originate in the Gulf of Mexico but is a continuation of the North Equatorial Current. The wide band of warm water sweeps along the eastern side of North America until it meets the cold Labrador Current, which forces it to flow in an easterly direction. From about longitude 45°W it ceases to be so strong and continues eastwards as the North Atlantic Current. In the eastern part of the ocean the currents are less well defined, the North Atlantic Current fanning out into different directions to form the south setting Azores Current and further east the Portuguese Current. This current sets along the Iberian peninsula, one branch being deflected through the Strait of Gibraltar into the Mediterranean, while the other sets SW along the African coast to become the Canary Current. Ultimately this current turns west to join the North Equatorial Current, thus completing the clockwise system of the North Atlantic currents.



North Atlantic currents

WINDS AND CURRENTS OF THE NORTH ATLANTIC

South of latitude 10°N the pattern of the currents is more complex. Between the two westward setting equatorial currents is the Equatorial Countercurrent. In winter this eastward setting countercurrent is most noticeable along latitude 6°N east of about longitude 45°W, but it diminishes in strength towards the South American continent

where it disappears altogether. The South Equatorial Current combines in this region with the North Equatorial Current to form a strong westward flowing current which is deflected in a northerly direction along the coast of South America towards the Lesser Antilles.

5

ROUTES IN THE NORTH ATLANTIC

The North Atlantic is crisscrossed by a larger number of sailing routes than any other ocean, and cruising boats have penetrated its furthest reaches from the steaming jungle of the Orinoco to the icy fjords of Greenland. The greatest concentration of cruising boats is in Northern Europe and North America, from which areas most offshore routes originate. To these should be added the routes fanning out from the Mediterranean, another area of great concentration. Although a certain proportion of offshore voyages are two-way and fit into a normal summer vacation, an increasing number of people are undertaking longer voyages lasting several months. Many of them complete a North Atlantic circumnavigation by planning a voyage that takes advantage of the most favourable weather conditions along the entire route.

Christopher Columbus was the first navigator to realise that there was a certain pattern to North Atlantic weather and in his four transatlantic voyages he used the prevailing conditions to best advantage. Ever since Columbus completed the first Atlantic circle in 1493, his example has been followed by countless sailors. The circuit has been increasingly popular with European sailors migrating west with the NE trade winds by reaching the Caribbean islands via the Canaries and returning east with the westerlies of higher latitudes, usually by calling at Bermuda and the Azores. In recent years, the circuit has been joined by sailors from the east coast of North America, who reach the Caribbean by what appears to be a roundabout route. For those who intended to spend a season in the Eastern Caribbean islands the accepted practice was to sail to the Lesser Antilles at the end of the hurricane season, in late October or early November. However, passages

from the US east coast at that time of year are seldom easy and therefore the alternative, albeit longer, route is an attractive proposition. Its greatest advantage is that it offers the possibility to cruise in the best seasons throughout the year. By leaving the USA in May, one can cross the Atlantic via Bermuda and the Azores, spend the summer in Europe, recross the Atlantic in November, spend the winter in the Caribbean and return home the following May. This schedule is a perfect example of being in the right place at the right time as it avoids the hurricane season in the Western Atlantic, both Atlantic crossings are undertaken at the most favourable times, the Caribbean islands are visited at the optimum season, and the return home is accomplished before the start of the new hurricane season.

The traditional route from America to Europe, which runs along higher latitudes to take advantage of the prevailing westerlies, is used mostly by American or Canadian sailors crossing to Ireland, Britain or other North European destinations. Boats heading for southern ports in Europe, including the Mediterranean, usually take the warmer route via the Azores.

Most offshore passages from Northern Europe are southbound and there is a very good reason for this. The dream of almost every cold water sailor is to cruise in warmer weather and so, when the time finally comes for that cruise, they invariably point their bows southwards, at least as far as the Mediterranean, but more likely the Canaries and Caribbean. Westbound passages in higher latitudes to America are now very much the exception, as most cruising sailors prefer to reach the other side of the Atlantic by a more roundabout and comfortable route. Even the route to the Azores attracts considerably fewer

ROUTES IN THE NORTH ATLANTIC

North European boats than in the past, when a summer cruise to the Azores was not regarded as out of the ordinary. For most European sailors, the Azores are now mainly a convenient stopover on the way home from the Caribbean.

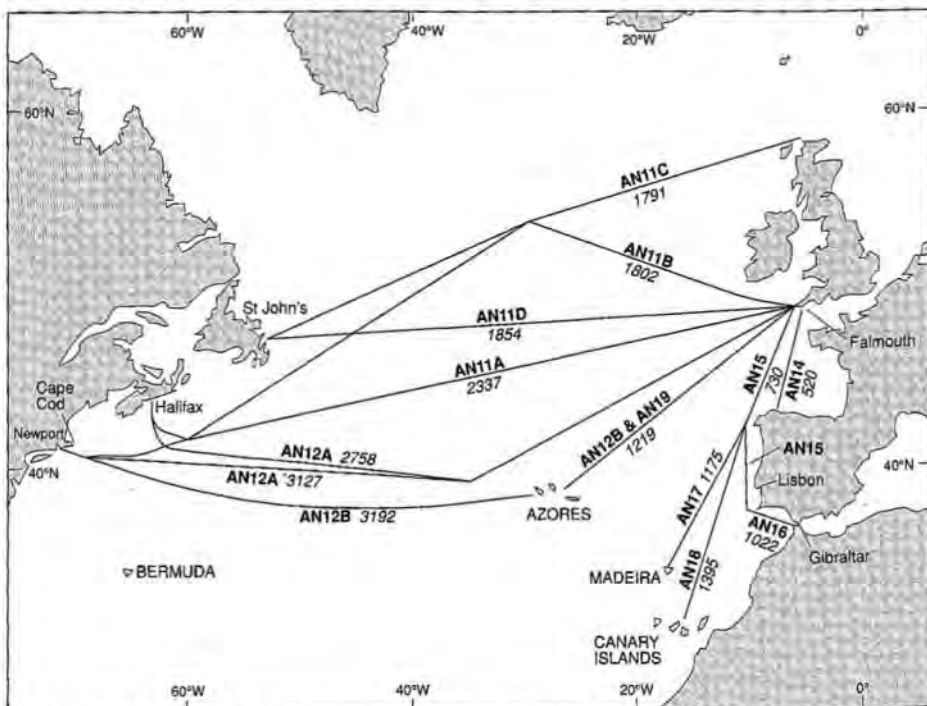
The opening up of the former Communist countries bordering on the Black and Baltic Seas is

attracting boats from both sides of the Atlantic to those areas. Because of the relatively short cruising season in the Baltic, the quickest way to reach that inland sea is via the Kiel Canal.

More ambitious sailors have even been tempted to visit some of the Russian ports on the White Sea and the sight of cruising boats sailing beyond

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AN10 Routes from Northern Europe

the Arctic Circle is no longer a rarity.

Because the sailing season in Northern Europe is limited to only a few months, most offshore passages take place between May and August. Earlier, the weather is still cold and unsettled, although for northbound passages the early part of the season has better chances of favourable, if strong, winds from the SW. With the onset of summer, the likelihood of NE winds is higher. After the end of August the weather becomes more unsettled and at least one violent storm can be expected either side of the autumn equinox.

Anyone sailing from the north has to pass two

major hurdles before reaching the more benign southern part of the North Atlantic. Sailing from the North Sea towards the English Channel one has to put up with one of the highest concentrations of shipping in the world, and if the visibility is poor and the wind unfavourable it is better to go into a port and wait for a change. The next hurdle is the Bay of Biscay where even in a moderate gale the seas can become very rough. However, the notorious bay is only about 300 miles across and if one leaves with a favourable forecast from a place like Falmouth, one should be able to cross without being caught out by the weather.

AN11 Europe to North America (northern routes)

BEST TIME:	June to August			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011			
	US: 121			
PILOTS:	BA: 27, 40, 59, 67, 68, 69			
	US: 140, 142, 145, 191			
CRUISING GUIDES:	<i>The Atlantic Crossing Guide, Cruising Guide to Newfoundland, Cruising Guide to the Nova Scotia Coast, Yachting Guide to the South Shore of Nova Scotia, Coastal Cruising Guide to the Atlantic Coast, Cruising Guide to the New England Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN11A				
AN110 Lizard	AN115 Sable	AN118 off Halifax	Halifax	2337
49°55'N, 5°10'W	43°30'N, 60°00'W	44°25'N, 63°25'W	44°38'N, 63°34'W	
	AN116 Nantucket	AN119 Brenton	Newport	2726
	40°30'N, 69°30'W	41°24'N, 71°16'W	41°29'N, 71°20'W	
Route AN11B				
AN111 Bishop	AN113 N Atlantic	AN117 off St John's	St John's	1802
49°50'N, 6°35'W	55°00'N, 30°00'W	47°34'N, 52°40'W	47°34'N, 52°42'W	
	AN115 Sable	AN118 off Halifax	Halifax	2286
	AN116 Nantucket	AN119 Brenton	Newport	2675
Route AN11C				
AN112 Wrath	AN113 N Atlantic	AN117 off St. John's	St John's	1791
58°40'N, 5°10'W	AN115 Sable	AN118 off Halifax	Halifax	2246
	AN116 Nantucket	AN119 Brenton	Newport	2621
Route AN11D				
AN110 Lizard	AN114 Mid-Atlantic	AN117 off St John's	St John's	1854
	51°26'N, 23°24'W			

ROUTES IN THE NORTH ATLANTIC

From the Vikings and the Pilgrim Fathers to participants in singlehanded races, the westbound transatlantic routes of high latitudes have been well sailed over the centuries. The great circle route from the English Channel (AN11A) is probably the most difficult as there is usually a battle against headwinds all the way across. The alternatives are either to make a detour to the north, in the hope of finding more favourable winds (AN11B), a track closer to the great circle route from Scotland (AN11C), or to make a detour to the south, in search of warmer weather, as described in AN12. All of the northern routes can be affected by fog and ice and their timing is therefore crucial. In July, the maximum iceberg limit extends SE from Newfoundland to 39°N, 50°W; in August the ice limit recedes to above latitude 41°N, which limits passages close to those latitudes to a few summer months. As most of the Western Atlantic can be affected by tropical storms, this hazard should be borne in mind also, especially during late summer passages.

The prevailing winds on route AN11A are mostly westerly with the added disadvantage of sailing against the Gulf Stream. It can be counterproductive to try and avoid the contrary current by moving south, as this brings the possibility of straying into the Azores high. To avoid the effect of the Gulf Stream entirely one may have to go further south along one of the routes described in AN12, or take a more northerly track. Timing on these routes is crucial and weather forecasts for as long as a week in advance should be

consulted before deciding on the best tactic.

The main object of the most northerly routes (AN11B and AN11C) is to stay north of the lows that move across the Atlantic from west to east. Although the chances of finding entirely favourable winds are only marginally better than on the direct route (AN11A), boats with good windward going capabilities have made speedy passages, as between the lows the winds are most likely to be either NW or SW. These northern routes converge at waypoint AN113 from where a new course is set for the port of destination. As these routes pass through an area with a very high incidence of fog and ice, they should only be attempted later in the summer.

One of the shortest routes across the Atlantic is the great circle route from the English Channel to St John's in Newfoundland (AN11D). As the course reaches its northernmost latitude at WP AN114, in some years this could be perilously close to the ice limit. Early in the season, or in a year with more ice than usual, it may be worth considering route AN12A which keeps to the south of the ice limit. This limit fluctuates from year to year and month to month. The average iceberg limits for July and August are mentioned above, but a more northerly course can be chanced if up to date ice reports can be obtained by radio.

Boats bound for US ports should use WPs AN115 and AN116 to avoid the shallows off Sable Island and Nantucket Shoal respectively. Only a few intermediate waypoints are suggested as all of these routes should be approached with complete flexibility.

AN12 *Europe to North America* (southern routes)

BEST TIME:	June to August
TROPICAL STORMS:	June to November
CHARTS:	BA: 4011 US: 126
PILOTS:	BA: 27, 40, 59, 67, 68, 69 US: 140, 142, 145, 191
CRUISING GUIDES:	<i>The Atlantic Crossing Guide, Azores Cruising Guide, Atlantic Islands, Yachting Guide to Bermuda, Cruising Guide to Newfoundland, Cruising Guide to the Nova Scotia Coast, Yachting Guide to the South Shore of Nova Scotia, Coastal Cruising Guide to the Atlantic Coast, Cruising Guide to the New England Coast.</i>

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN12A				
AN120 Lizard	AN121 Ice			
49°55'N, 5°10'W	39°00'N, 35°00'W			
	AN122 Sable	AN127 off Halifax	Halifax	2758
	43°30'N, 60°00'W	44°25'N, 63°25'W	44°38'N, 63°34'W	
	AN123 Nantucket	AN128 Brenton	Newport	3127
	40°30'N, 69°30'W	41°24'N, 71°16'W	41°29'N, 71°20'W	
Route AN12B				
AN120 Lizard	AN124 Graciosa			
	39°12'N, 27°50'W			
	AN125 São Jorge			
	38°46'N, 28°20'W			
	AN126 Faial	AN127 off Halifax	Halifax	2811
	38°32.5'N, 28°35.5'W			
	AN123 Nantucket	AN128 Brenton	Newport	3192

To avoid the headwinds and cold weather on the more direct transatlantic routes described in AN11, there is a choice of a more southerly course, which can be either direct (AN12A) or via the Azores (AN12B).

The prevailing winds on route AN12A are westerly with the added disadvantage of sailing against the Gulf Stream. It can be counterproductive to try and avoid the contrary current by moving south, as this brings the possibility of straying into the Azores high, so one must be prepared to either put up with the current or move far enough south to avoid it altogether. Fast passages have been recorded on this route, but this has been due mainly to the individual boat's performance as well as access to weather information. Weather forecasts for at least one week in advance should be consulted before departure to be able to decide on the best tactic. Passages in early summer should use WP AN121 to avoid the southern ice limit. West of the Azores waypoints AN122 and AN123 are given to avoid the shallows off Sable Island and Nantucket Shoal respectively.

Route AN12B is a fair weather alternative and also a continuation of route AN19 via the Azores (page 47). Although longer than the other routes, it has the advantage of warmer weather and a mid-Atlantic stop for rest and reprovisioning. The course westward from the Azores will depend both on the final port of destination and the weather encountered. Depending on the winds encountered, one should not move north of about latitude 37°N so as to avoid the southern limit of the Gulf Stream and possibly the Azores high as well. South and southwesterly winds prevail along this route in summer.

This route is likely to be affected by tropical storms after the middle of June, the risk of hurricanes increasing as summer progresses. For the same reason, a stopover in Bermuda is only recommended in an emergency as it involves a detour and also increases the time spent in an area affected by hurricanes. Route AN137 (page 148) should be consulted for details if a stop in Bermuda is envisaged.

AN13 Southbound from Northern Europe

BEST TIME:	May to mid-August
TROPICAL STORMS:	None
CHARTS:	BA: 2128A, 2128B US: 126
PILOTS:	BA: 1, 22, 27, 28, 54, 55, 67 US: 143, 191, 192
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell Pilot to the English Channel Vols 1 & 2, North Sea Passage Pilot.</i>

For southbound yachts from the Baltic, the Kiel Canal offers a convenient access to the North Sea. From WP AN130 in the Elbe estuary, the route runs parallel to the Frisian islands. All routes from Scandinavia and Northern Europe converge into the Straits of Dover on their way towards the Bay of Biscay. The early summer months are the best time for these southbound passages as weather conditions and winds are generally favourable both in the North Sea and the English Channel. The winds from May to July are mostly northerly and the frequency of gales in the North Sea is low. Good conditions can be relied upon to last until about the middle of August after which the risk of gales

increases. September has some of the most violent storms, usually associated with the equinox. Although not ideal, October can be a reasonably good month for a southbound passage allowing those who have dallied too long to join the boats heading south from Gibraltar and Madeira towards the Canary Islands. In this case sufficient time should be allowed and charts carried of both holes along the Dutch and English coasts in which to seek shelter in threatening weather. As this route intersects some of the busiest shipping lanes in the world, particular attention must be paid to shipping, especially in bad weather and poor visibility.

AN14 Routes across the Bay of Biscay

BEST TIME:	May to mid-August
TROPICAL STORMS:	None
CHARTS:	BA: 4103 US: 126
PILOTS:	BA: 22, 27, 28, 37 US: 143, 191
CRUISING GUIDES:	<i>South Biscay Pilot, Atlantic Spain and Portugal.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
AN140 Lizard 49°55'N, 5°10'W		AN141 Villano 43°10'N, 9°40'W		
		AN142 Prior 43°35'N, 8°24'W	La Coruña 43°21.5', 8°23'W	520

Whether starting off from an English harbour or any port in continental Europe, it is advisable to make a last stop in Falmouth to wait for a good weather forecast before crossing the Bay of Biscay. This port in the SW of England has good docking and repair facilities and is excellently situated to

wait for favourable conditions for the continuation of a voyage. A departure should not be attempted if SW winds are forecast, which are generated by depressions moving across the North Atlantic. As soon as the depression has passed, NW winds can be expected and with a reasonable long term

forecast there is usually sufficient time to reach Cape Finisterre before another change in the weather.

Regardless of the forecast and the actual direction of the wind, it is wise to try and make some westing and not follow a rhumb line across the Bay. Taking as a departure point WP AN140, just south of Lizard Point, course is set for WP AN141, 20 miles west of Cape Villano and some 25 miles NW of Cape Finisterre, at the start of the shipping separation zone going around the latter. For the continuation of the southbound routes see AN15 and AN16 (below and page 44).

As a rule, while crossing the Bay of Biscay, if the winds are from the SW and one is sailing on the starboard tack, one should avoid being set too much to the SSE or SE, so as not to be embayed by a SW gale, which is the usual direction of the worst gales. Because of the abrupt change from deep to shallow waters in the Bay of Biscay, seas can become extremely rough even in a moderate storm. The situation is sometimes exacerbated by a high swell generated by a hurricane blowing

thousands of miles away.

The best time to make this passage is in early summer, between May and July, when the weather is often settled and the winds favourable, probably from the NE. Towards the end of summer the frequency of gales increases and more attention should be paid to the forecasts from the middle of August to the end of September when some of the most violent storms have been recorded. Although called equinoctial gales these violent storms can occur on either side of the autumn equinox and the seas generated by them in the Bay of Biscay can be extremely rough.

With a good forecast, especially early in the summer, one may be tempted to stop first at one of the Spanish ports, such as La Coruña. The rest of the voyage can then be continued in easy stages along the western coasts of Spain and Portugal. Those planning to stop in Northern Spain can sail a direct route by setting course from WP AN140 to WP AN142, three miles WNW of Cape Prior, in the approaches to La Coruña.

AN15 Northern Europe to Portugal

BEST TIME:	May to mid-August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103			
	US: 126			
PILOTS:	BA: 22, 27, 28, 37, 67			
	US: 143, 191			
CRUISING GUIDES:	<i>South Biscay Pilot, Atlantic Spain and Portugal.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN150 Lizard 49°55'N, 5°10'W	AN151 Villano 43°10'N, 9°40'W	AN152 Lima 41°42'N, 8°55'W	Viana 41°41'N, 8°55'W	540
	AN153 Berlenga 39°30'N, 9°40'W			
	AN154 Raso 38°42'N, 9°38'W	AN155 N Channel 38°40'N, 9°20'W	Lisbon 38°41.5'N, 9°12'W	730

Boats not intending to stop on the north Spanish coast should skirt the Bay of Biscay and make for waypoint AN151, approximately 25 miles NW of Cape Finisterre. This avoids both the Bay itself and the busy traffic passing close to Cape Finisterre. The best time to make this passage is in early summer, between May and July, when the weather is often settled and the winds favourable. Towards the end of the summer the frequency of gales

increases and more attention should be paid to the forecasts from the middle of August to the end of September when some of the most violent storms have been recorded.

Having weathered Cape Finisterre, landfall can be made at WP AN152, off Rio Lima, a tidal river on the north shore of which lies Viana do Castelo, an attractive small town with a marina, which is a convenient place to clear into Portugal. Its main

ROUTES IN THE NORTH ATLANTIC

drawback is the bar across the river entrance where seas break in onshore winds. In such a case it is wise to look for an alternative.

If one is short of time, one can sail nonstop to Lisbon. From WP AN151, off Cape Finisterre, a course should be set for WP AN153, west of

Berlenga Islands. From there course is altered for WP AN154, off Cabo Raso, in the approaches to Lisbon. Canal Norte (North Channel) leads into the Tagus River, the Portuguese capital being situated about 8 miles upstream on the north shore of the river.

AN16 Northern Europe to Mediterranean

BEST TIME:	May to mid-August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103 US: 126			
PILOTS:	BA: 22, 27, 67 US: 143, 191, 192			
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot, Spanish Mediterranean Yachtsman's Directory.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN160 Lizard 49°55'N, 5°10'W	AN161 Finisterre W 43°10'N, 10°00'W			
	AN162 Berlenga 39°30'N, 9°40'W			
	AN163 Vincent NW 37°00'N, 9°08'W			
	AN164 Hoyo 36°04'N, 6°20'W			
	AN165 Tarifa 35°59'N, 5°36'W			
	AN166 Carnero 36°03'N, 5°25'W	AN167 Gibraltar	Marina Bay	1022
		36°08'N, 5°22'W	36°09'N, 5°21'W	
		AN168 Europa Point 36°04'N, 5°20.5'W		1021

Instructions for crossing the Bay of Biscay are similar to those described in AN15. Boats intending to sail to the Mediterranean nonstop should stay well offshore and pass Cape Finisterre at a safe distance by setting course for WP AN161. During summer the winds along the Portuguese coast are usually favourable northerlies, which will ensure a fast sail all the way to Cape St Vincent. From Cape Finisterre, the course runs along the 10°W meridian and passes close to the west of Berlenga Islands to WP AN162. From there the course will be altered to WP AN163, 7 miles off Cape St Vincent.

From Cape St Vincent the course is altered for the Strait of Gibraltar to WP AN164, off Hoyo Bank, at the SW extremity of the shallows off Cape Trafalgar. The next waypoint to make for is WP

AN165, 2 miles south of Tarifa Island and inside the westgoing shipping lane. A course parallel to the Spanish coast will take one into the Bay of Gibraltar to WP AN166 off Punta Carnero and thence to WP AN167 off North Mole and the approaches to Marina Bay. Boats proceeding into the Mediterranean without calling at Gibraltar should make for WP AN168, 3 miles south of Europa Point. At night boats transiting the Strait nonstop may find it easier to cross over to the African coast earlier and stay in the eastgoing shipping lane.

Once past Cape St Vincent, the Portuguese trades are normally lost and winds become more local in character. On summer days, a SW sea breeze occurs on approaching the Bay of Cadiz. This wind comes

up around noon and lasts until midnight. If a strong *Levanter* is predicted in the Strait of Gibraltar, it is advisable to wait for a change in one of the ports along the Algarve coast (Lagos or Vilamoura) or Bay of Cadiz (Puerto Sherry). Another convenient port is Barbate, which is not far west of Tarifa and is the closest to the Strait. Alternatively, one can find some shelter in the lee of Tarifa Island itself. Weather information, as well as other shipping news, can be obtained from Tarifa Radio, which operates a 24-hour service in both Spanish and English.

The Strait of Gibraltar separates Europe from Africa and at its nearest point the two continents are only 7.5 miles apart. A traffic separation zone operates along the 35 miles of the Strait, with westbound traffic using the north lane and eastbound traffic the south lane. Small craft can use the inshore lanes, and boats making for Gibraltar are recommended to keep close to the Spanish shore. However, one should be extremely cautious, particularly at night, as fishing nets are often set without any regard for shipping. These nets can stretch for several miles offshore and have even been set in the traffic separation zone between the two shipping lanes approaching the Strait from the west. The nets are normally marked by small lights, which are difficult to see from a distance.

Another hazard to watch out for are tidal races

and overflows, the most violent occurring on the north side extending SW from Cape Trafalgar. Wind against tide can produce rough seas west of Tarifa with an easterly wind, and east of Tarifa with a westerly wind. The main problem is the strength of the currents and the unpredictability of the tidal streams. There is a permanent east setting current of about 2 knots through the Strait, being strongest at the centre and weakest at the edges. The current is weakest over shallow water where the flow can be reversed by a contrary wind.

Negotiating the Strait from west to east is usually easier because the prevailing current always sets from the Atlantic into the Mediterranean. By entering the Strait at the right time, a boat coming from the Atlantic can count on as much as nine hours of favourable current. However, conditions can become extremely rough if a strong *Levanter* blows against the current. Although tidal data in the Strait is not entirely reliable, it has been established that in the middle of the Strait the east setting stream starts approximately at the time of HW Gibraltar and the west going stream six hours later. It can also be assumed that the tidal flow from high to low water is to the east, while the flow from low to high water is to the west. The times of HW Gibraltar can be requested over the VHF radio from Tarifa Radio.

AN17 Northern Europe to Madeira

BEST TIME:	May to mid-August
TROPICAL STORMS:	None
CHARTS:	BA: 4014 US: 120
PILOTS:	BA: 1, 22, 27, 67 US: 143, 191
CRUISING GUIDES:	<i>Atlantic Islands, Madeira Cruising Guide.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
AN170 Lizard 49°55'N, 5°10'W	AN171 Finisterre NW 44°00'N, 10°00'W AN172 off Madeira 33°00'N, 16°32'W	AN173 Fora 32°43.5'N, 16°38'W	AN174 Garajau Funchal 32°37.5'N, 16°54.5'W	1175
AN170 Lizard	AN171 Finisterre NW AN175 North Santo 33°10'N, 16°15'W	AN176 Cima SE 33°02'N, 16°16'W	Porto Santo 33°03'N, 16°19'W	1130

As the great circle route from the English Channel to Madeira passes at a safe distance west of Cape Finisterre, similar directions apply for the passage across the Bay of Biscay as for route AN15. As the intention is not to stop in Northern Spain or continental Portugal, some westing should be made after leaving the English Channel so as to have sufficient searoom should a southwesterly gale blow up while crossing the Bay of Biscay. On leaving the English Channel, a course should be set for WP AN171, some 60 miles NW of Cape Finisterre. Such a course avoids the shipping lanes that converge on Cape Finisterre. Having passed the latter, boats going to Funchal should set a direct course to WP AN172, west of Porto Santo Island. The island of Madeira is best approached from the NE by rounding Ilheu de Fora, a small islet on which stands a powerful light. From WP AN173, one mile E of the latter, course can be altered to pass south of Ponta de Garajau (WP AN174) and thence to Funchal.

Because the marina in Funchal, the capital of Madeira, is very crowded in October, when most cruising boats plan to stop there on their way south, a stop in Porto Santo is recommended at this time of year.

In such a case, from WP AN171 one should make for WP AN175 and approach the main harbour on Porto Santo from the NE and E. There are a number of dangers along Porto Santo's coasts and these are avoided by keeping well off the coast and making for WP AN176. From there the course can be altered for the port after Ilheu de Cima, the small islet off the SE extremity of the island, has been left to starboard.

During the summer, winds along this route are mostly favourable with the Portuguese trade winds blowing off the Iberian Peninsula and African coast. Also favourable is the Portugal Current which sets in a SSW direction.

In theory, this passage can be made at any time between April and October but the weather should be watched carefully. If a late start is made as part of a transatlantic passage, particular attention should be paid to the weather forecasts during September and October, as West Indian hurricanes can influence weather conditions even on the east side of the Atlantic. Some of the worst weather on this route has been recorded in September or early October with gale force southwesterlies generated by a passing front.

AN18 Northern Europe to Canary Islands

BEST TIME:	May to mid-August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4014 US: 120			
PILOTS:	BA: 1, 22, 27, 28, 55, 67 US: 143, 191			
CRUISING GUIDES:	<i>Canary Islands Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN180 Lizard 49°55'N, 5°10'W	AN181 Finisterre NW 44°00'N, 10°00'W	AN182 Isleta 28°09'N, 15°23'W AN183 Alegranza 29°25'N, 13°28'W AN184 Graciosa 29°13'N, 13°34'W	Las Palmas 28°07.5'N, 15°25.5'W Arrecife 28°57'N, 13°32.5'W La Sociedad 29°13.8'N, 13°30'W	1395 1325 1313

The direct course from the English Channel follows closely the route to Madeira and the same directions apply as for routes AN15 and AN17 to WP AN181 off Cape Finisterre. As such a nonstop passage from Northern Europe to the Canaries is usually attempted late in the season by boats hurrying to join the trade wind route to the

Caribbean, the weather can be less favourable and the likelihood of gales is greater than in summer. As suggested when discussing routes across the Bay of Biscay, such a passage should not be started unless there is a good forecast for at least 72 hours. This nonstop route to the Canaries is only recommended for those who wish to provision

there before a transatlantic passage to the Caribbean. If planning to sail on to Cape Town, Brazil, or any other South Atlantic destination, it might be better to keep to the west of the Canaries so as to cross the equator on a meridian where the doldrums are narrower than in the proximity of the African coast. Transequatorial routes are discussed in chapter 6.

South of the Bay of Biscay bad weather is usually associated with depressions moving across the Atlantic to the north of Madeira and generating strong SW winds. In the likelihood of encountering such weather, it is advisable to keep well off the Portuguese coast so as to be able to go on the starboard tack when the SW winds arrive. Once the front has passed, the winds will move rapidly to the NW. A course can then be set for WP AN182, north of La Isleta light in the approaches to Las Palmas. The conspicuous shape of La Isleta makes a perfect landfall. 2.5 miles further south

is the entrance to Las Palmas harbour, which in 1994 was undergoing extensive enlargement works. The eastern breakwater was being extended southwards and this may not be shown on some charts.

If the passage is undertaken earlier in the season with the intention of spending some time cruising the Canaries, the first landfall should be in Lanzarote, which lies to windward of all other islands in the archipelago. From WP AN181 course should be set for AN183 off Alegranza. It is also possible to stop first at Graciosa, a small island north of Lanzarote, which has a small but well protected port at La Sociedad, its main settlement situated on the north shore of the narrows separating Graciosa from Lanzarote. In this case landfall is made at AN184 west of Graciosa, from where the south coast of the island is followed around to La Sociedad. Entry formalities can be completed later in Lanzarote itself.

AN19 Northern Europe to Azores

BEST TIME:	May to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103			
	US: 126			
PILOTS:	BA: 22, 27, 28, 55, 67			
	US: 140, 143			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN190 Lizard 49°55'N, 5°10'W	AN192 Graciosa 39°12'N, 27°50'W	AN191 Arnel 37°50'N, 25°06'W	Ponta Delgada 37°44'N, 25°39.5'W	1148
	AN193 Jorge 38°46'N, 28°20'W	AN194 Espalamaca 38°32.5'N, 28°35.5'W	Horta 38°32'N, 28°37.5'W	1219

The best time to make this passage is in June or July when favourable conditions can usually be expected. Although the likelihood of W and SW winds is quite high at the start of the voyage, the frequency of N winds increases further south during the summer. It pays to wait before leaving the English Channel until N winds are forecast, as they allow a direct course to be set. Arriving from Northern Europe, the most convenient port of entry is the capital Ponta Delgada, which has a new marina. Coming from NE or E landfall will be made

at the eastern extremity of São Miguel Island at WP AN191, two miles east of Ponta do Arnel.

Those wishing to sail direct to Horta, on Faial, should set a course for WP AN192 and make landfall NE of Graciosa, the northernmost island of the archipelago. From there, the course is altered to pass west of São Jorge island (WP AN193) and thence to WP AN194 off Ponta Espalamaca in the approaches to Horta. In strong SW winds, the channel between Pico and Faial, in the approaches to Horta, can be affected by violent gusts. These, and

ROUTES IN THE NORTH ATLANTIC

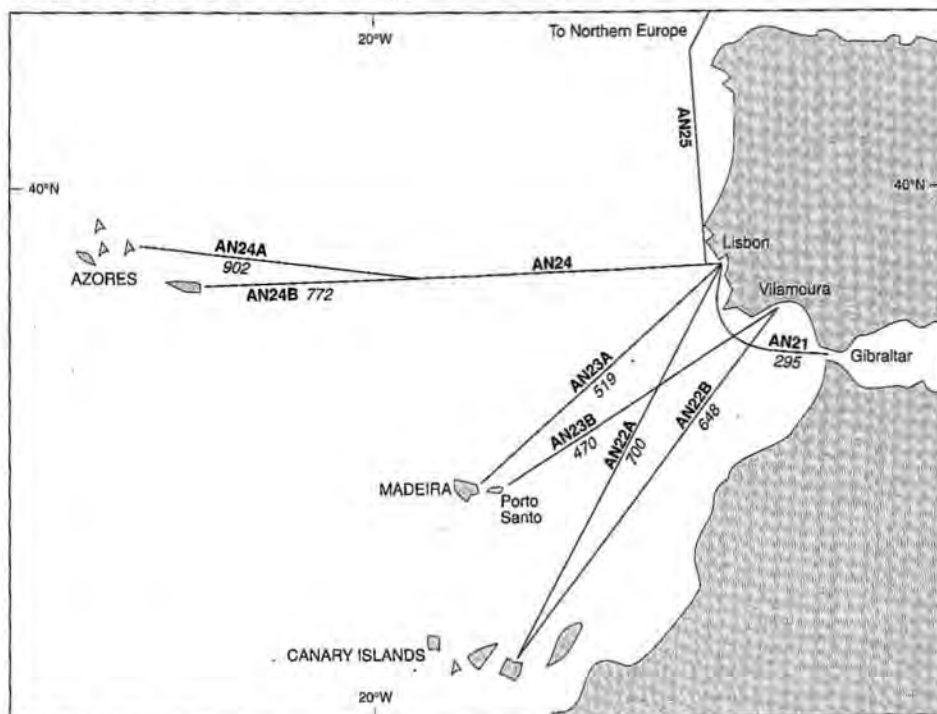
the north setting current, should be taken into account if attempts are made to enter Horta under such conditions.

If W winds persist on leaving the English Channel, or strong SW winds are encountered en route, and a direct course to the Azores does not seem practicable, it might be better to change plans and sail there via Spain or Portugal. Such a route is described in AN15. On the subsequent leg from

one of the ports on the Iberian Peninsula one has the benefit of the Portuguese trades, although such a detour can add about 300 miles to the total distance. However, the possibility of encountering westerly winds on the subsequent section to the Azores cannot be discounted and therefore such a detour should not be contemplated unless one has access to reliable weather information.

AN20 ROUTES FROM PORTUGAL

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AN22 <i>Portugal to Canary Islands</i>	50
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AN20 Routes from Portugal

Until recently most sailors associated Portugal with the Algarve coast and the marina at Vilamoura,

where many North European sailors left their boats either before venturing further east into the

Mediterranean or across the Atlantic. The west coast of Portugal has only recently started attracting cruising boats in any numbers, but things are rapidly changing as sailors discover the many attractions of this small country whose history has always been associated with the sea. The capital Lisbon is a delightful city to explore, although docking facilities for visitors continue to be disappointingly inadequate.

The most significant feature of this area are the Portuguese trades, which blow steadily down the coast during summer months. The prevailing summer winds are northerly. Such winds are common from April to September and in June and July can reach as far as Madeira. The NW shores of the peninsula experience more variable winds, although there is also a northerly component in summer. The prevailing winds make it essential to start a summer cruise as far north as possible. Similarly, during the summer months it is normally easier to sail from mainland Portugal to its outlying islands than vice versa. In fine summer weather there are land and sea breezes along the coast although the northerly trades do modify the sea breezes to some extent. There is also more sea fog in summer near the coast associated with calm or light winds. There is often a remarkable change in weather after Cape St Vincent has been passed. The one potential trouble spot for boats sailing east is the Strait of Gibraltar and the tactics for negotiating it are outlined in route AN16. Sailing from the mainland to Madeira is rarely dif-

ficult with the Portuguese trades ensuring fast passages. Occasionally, however, with the passage of a depression, the winds can come from the southwest, when it is better to wait for a change. The same applies to the passage to the Canaries, which also benefits from fair winds most of the time. Passages to the Azores are usually a mixture of good winds for the first half and variable conditions as one approaches the archipelago.

Because mainland Portugal is often the starting point for a cruise in the Azores, a few useful tips are given in route AN24. A cruise in the Azores does not lend itself to a logical sequence and therefore its starting point should be dictated by the subsequent destination. For those heading west across the Atlantic and who have the time to spend at least two weeks in the Azores, the logical landfall, and start of an Azorean cruise, should be either the small island of Santa Maria or the capital Ponta Delgada, on neighbouring São Miguel island. Boats planning to return to Portugal or the Mediterranean, as well as those intending to sail later to Madeira and the Canaries, should consider making their first landfall as far north as Graciosa and start their cruise there by calling successively at São Jorge, Faial, Pico, and Terceira on their way to São Miguel and Santa Maria. Boats bound for Northern Europe may find better conditions for their subsequent voyage to the English Channel by sailing the obverse route to the one described and take their leave from the Azores in Graciosa.

AN21 *Portugal to Gibraltar*

BEST TIME:	April to October
TROPICAL STORMS:	None
CHARTS:	BA: 87 US: 51150, 51160
PILOTS:	BA: 67 US: 131, 143
CRUISING GUIDES:	<i>Yacht Scene, Atlantic Spain and Portugal.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN211 off Lisbon 38°37'N, 9°20'W	AN212 Vincent NW 37°00' N, 9°08' W AN213 Hoyo 36°04' N, 6°20' W AN214 Tarifa 35°59'N, 5°36'W	AN215 Gibraltar 36°08'N, 5°22'W	Marina Bay 36°09'N, 5°21'W	295

Along the western coast of Portugal northerly winds can be expected, especially in summer, when the Portuguese trades are the prevailing winds. On leaving Lisbon, or any port further up the coast, Cape Espichel is passed at a safe distance and a course is set for WP AN212, 7 miles off Cape St Vincent. The course is then altered for WP AN213 off Hoyo Bank at the SW extremity of the shallows off Cape Trafalgar. A hazard to be borne in mind along this route are tuna nets, which can stretch for several miles off the Spanish coast and may lay across the above route. The next waypoint to make for is WP AN214, two miles south of Tarifa Island and inshore of the westgoing shipping lane. A course parallel to the Spanish coast leads into the

Bay of Gibraltar. The reporting dock for customs and two of the marinas are easiest found by making for WP AN215 off the North Mole.

After Cape St Vincent has been passed, the winds become variable and the northerlies are usually lost. Closer to the Strait of Gibraltar, the winds change again and usually blow either in or out of the Strait. The current is favourable on this route as there is a constant flow of water from the Atlantic to the Mediterranean. The easterly *Levanter* wind produces a steep sea when blowing against the contrary current, which can make conditions difficult for a small boat when the wind is strong. Additional directions for transiting the Strait are given in route AN16.

AN22 Portugal to Canary Islands

BEST TIME:	May to October			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104			
	US: 104			
PILOTS:	BA: 1, 67			
	US: 143			
CRUISING GUIDES:	<i>Canary Islands Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN22A				
AN221 off Lisbon		AN223 Isleta	Las Palmas	700
38°37'N, 9°20'W		28°09'N, 15°23'W	28°07.5'N, 15°25.5'W	
Route AN22B				
AN222 off Vilamoura		AN223 Isleta	Las Palmas	648
37°01'N, 8°08'W				

This is usually a pleasant passage, especially in summer when the Portuguese trades blow consistently and the southbound passage is further aided by the favourable current. Boats leaving from Lisbon (AN22A) can set a course for Gran Canaria as soon as they are safely out of the Tagus estuary through the South Channel. From WP AN221 a course is set for WP AN223 north of La Isleta light in the approaches to Las Palmas. If leaving from Vilamoura (AN22B) the course should stay well off the African coast as steadier winds will be encountered further offshore. From WP AN222 one mile SW of the marina entrance, a course can then be set for the same WP AN223, north of La Isleta. This keeps clear of all dangers, including El Roque rock off Punta El Nido. The con-

spicuous shape of La Isleta makes a perfect landfall. 2.5 miles further south is the entrance to Las Palmas harbour, which in 1994 was undergoing extensive enlargement works. The eastern breakwater was being extended southwards and this is only shown on the latest charts.

From June to September the Portuguese trades usually provide excellent sailing conditions along this route. In May and October the winds are less constant, although their direction continues to be predominantly northerly. November has a higher incidence of winds from other directions, but winds from the northern quarter are still in the majority. The passage to the Canaries should not be left for too late in the season, as strong SW winds with rough seas are often encountered by

boats sailing this route after the end of October. Anyone intending to see more of the Canaries should plan on stopping first in Lanzarote,

which is the logical island from which to start a cruise in the Canary Islands. See AN18 for further details.

AN23 *Portugal to Madeira*

BEST TIME:	May to October			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104			
	US: 12			
PILOTS:	BA: 1, 67			
	US: 143			
CRUISING GUIDES:	<i>Atlantic Islands, Madeira Cruising Guide.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN23A				
AN231 off Lisbon 38°37'N, 9°20'W	AN233 Santo S 32°50'N, 16°15'W			
	AN234 Garajau 32°38'N, 16°50'W		Funchal 32°37.5'N, 16°54.5'W	519
AN232 off Vilamoura 37°01'N, 8°08'W	AN233 Santo S AN234 Garajau		Funchal	507
Route AN23B				
AN231 off Lisbon	AN235 Santo N 33°10'N, 16°15'W			
	AN236 Cima NE 33°04'N, 16°15'W		Porto Santo 33°03'N, 16°19'W	478
AN232 off Vilamoura	AN235 Santo N AN236 Cima NE		Porto Santo	470

Throughout the year the predominant winds on this route are from the northerly quarter, but best sailing conditions are usually experienced between June and August when NE winds prevail. Although these Portuguese trades normally reach as far as Madeira, the likelihood of contrary winds increases with the approach of winter. During the summer, winds along this route are mostly favourable when the Portuguese trade winds blow off the Iberian Peninsula and African coast. Also favourable is the Portugal Current which sets in a SSW direction. The weather in the vicinity of Madeira is influenced by the position of the Azores high, light winds and calms occurring when this high moves south of its normal position.

Leaving from either Lisbon (WP AN231) or Vilamoura (WP AN232) boats bound for Funchal

can set a direct course (route AN23A) for WP AN233, south of Porto Santo Island. From there the course is altered for WP AN234, south of Ponta do Garajau, on the south coast of Madeira, and thence to Funchal.

As Porto Santo is on the direct route to Madeira and the marina in Funchal, the capital of Madeira, is often very crowded, a stop in Porto Santo is recommended. If a stop in Porto Santo is intended, the initial course (route AN23B) should be set for WP AN235, NE of Porto Santo. From there make for WP AN236, one mile NE of Ilheu de Cima. There are a number of dangers along Porto Santo's east coast and these are avoided by keeping well off the coast and only altering course for the port after Ilheu de Cima, the small islet off the SE extremity of the island, has been left to starboard.

AN24 Portugal to Azores

BEST TIME:	June to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103 US: 103			
PILOTS:	BA: 67 US: 143			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN24A				
AN241 off Lisbon	AN243 Terceira		Horta	902
38°37'N, 9°20'W	38°33'N, 27°00'W		38°32'N, 28°37.5'W	
AN242 off Vilamoura	AN245 Sagres			
37°01'N, 8°08'W	38°56'N, 8°57'W		Horta	972
	AN243 Terceira			
Route AN24B				
AN241 off Lisbon		AN244 Garça	Ponta Delgada	772
		37°40'N, 25°23'W	37°44'N, 25°39.5'W	
AN242 off Vilamoura	AN245 Sagres	AN244 Garça	Ponta Delgada	836

This route between continental Portugal and its offlying archipelago has the benefit of the Portuguese trades during summer months when northerly winds predominate. If the passage is made in May, strong northerly winds may be encountered for the first days, being replaced by light winds or calms if a ridge of high pressure extending from the Azores high is crossed. The winds on the other side of the ridge normally blow from a SW direction. At the beginning and end of summer the frequency of gales is higher, as are SW winds.

On leaving the mainland with a fair northerly wind, boats using the Azores as a stopover on a transatlantic passage and planning to call at Horta (AN24A) rather than Ponta Delgada (AN24B) should sail a course which passes north of São Miguel. Such a course is recommended because of the difficulty of leaving Ponta Delgada should the winds change later to SW.

From WP AN241 off the South Channel in the approaches to Lisbon, a direct course leads to WP AN243, SE of the island of Terceira. Depending on weather conditions, from that point Horta can be reached by sailing either north or south of the island of Pico. In strong SW winds it is better to stay north of Pico and, if the weather deteriorates, one can seek shelter at Velas (38°40.5'N, 28°12'W),

the main port on São Jorge. Terceira itself has a good harbour at Angra do Heroísmo (38°39'N, 27°13'W), although it is open to the south and should be avoided in strong winds from that direction. In strong SW winds, the channel between Pico and Faial, in the approaches to Horta, can be affected by violent gusts. These, and the north setting current, should be taken into account if attempting to enter Horta under such conditions.

The direct route to Ponta Delgada (AN24B) leads to WP AN244, 3 miles south of Ponta da Garça, on the south coast of the island of São Miguel. Boats coming from ports south of Lisbon may prefer to make their first Azorean landfall at São Miguel. There is a good new marina at Ponta Delgada, the capital of the Azores, which has the best facilities in the archipelago. Another good starting point for a cruise among the islands is the island of Santa Maria, at the southeastern extremity of the archipelago, from where the other islands can be reached in logical succession. The alternative is to start cruising the Azores from one of the furthest islands, such as Graciosa, and, after visiting islands in the central group, take one's leave from the Azores in Santa Maria. The two westernmost islands of Flores and Corvo are usually visited by boats arriving from the west and their inclusion

in a cruise starting from the east is more difficult and less practical.

Some boats sailing from mainland Portugal to the Azores take their leave from Vilamoura, on the Algarve coast. From WP AN242, one mile SW of

the marina entrance, a course should be set for WP AN245, 5 miles S of Cape Sagres. From there the course is altered for one of the landfall points mentioned above.

AN25 Portugal to Northern Europe

BEST TIME:	April to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103 US: 103			
PILOTS:	BA: 22, 27, 28, 55, 67 US: 143, 191			
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell Pilot to the English Channel vols. 1 & 2, Adlard Coles Pilot Pack 3</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Lisbon 38°41.5'N, 9°12'W	AN251 N. Channel 38°40'N, 9°20'W AN252 Raso 38°42'N, 9°33'W AN253 Berlenga 39°30'N, 9°40'W			
	AN254 Villano 43°10'N, 9°40'W	AN256 Lizard 49°55'N, 5°10'W	Falmouth 50°09.5'N, 5°04'W	745
Viana 41°41'N, 8°55'W	AN255 Lima 41°42'N, 8°55'W AN254 Villano	AN256 Lizard	Falmouth	555

The prevailing northerly winds of summer, which ensure excellent sailing conditions for southbound passages, make the task of reaching northern destinations very difficult throughout the summer months. The easiest solution is to sail up the coast in easy stages by taking advantage of favourable breezes which may blow close inshore. Having reached Northern Portugal, one can wait for favourable conditions to cross the Bay of Biscay.

The other alternative is to take an offshore tack and try to make as much northing as possible until more favourable winds are met. North of latitude 45°N westerly winds become increasingly predominant, but towards the end of summer the frequency of SW gales also increases, so it is better to plan this passage for the first half of summer. The time to avoid, if at all possible, is the period leading up to the autumn equinox as gales which occur around this time can produce hazardous conditions in the Bay of Biscay.

Boats leaving from Lisbon should take the Northern Channel so as to reach the open sea at WP AN252, off Cabo Raso. The course then leads west of the Berlenga Islands through WP AN253 and on to WP AN254, some 25 miles NW of Cape Finisterre. From that point a direct course can be set for WP AN256 off Lizard Point in the approaches to Falmouth, a most convenient port of entry into the United Kingdom.

Contrary winds, especially during summer, may force one to break the initial section of this passage into shorter stages. In such a case a good departure point from Northern Portugal is the small port of Viana do Castelo. When leaving from there one should wait for favourable conditions to cross the bar across the entrance. Having reached the open sea, from WP AN255 a course can then be set for AN254 and, provided conditions continue to be right, across the Bay of Biscay into the English Channel.

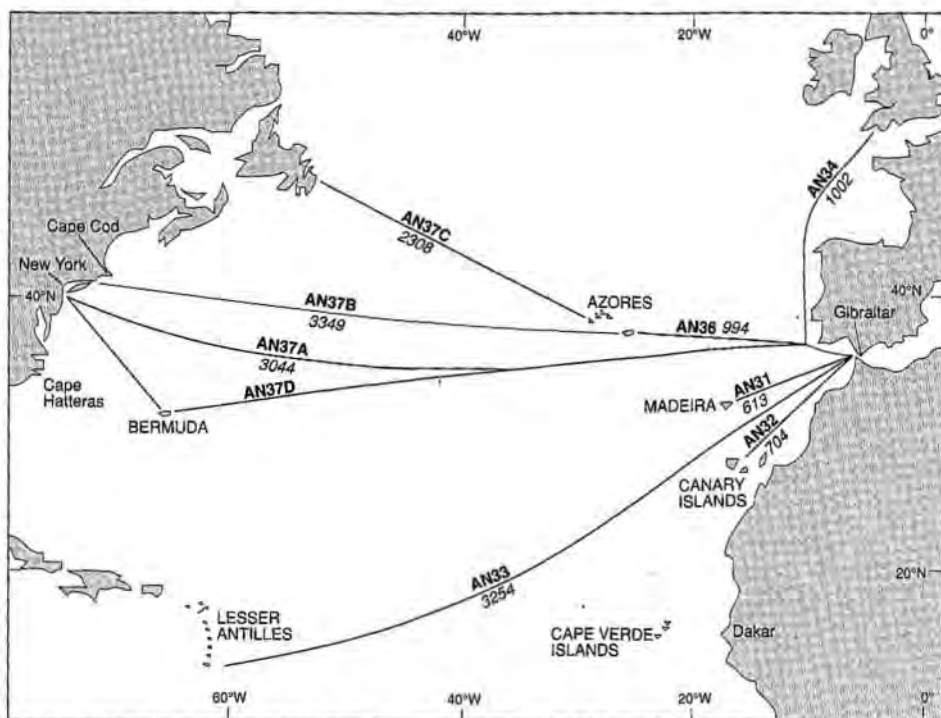
AN30 ROUTES FROM GIBRALTAR

AN31	<i>Gibraltar to Madeira</i>	55
AN32	<i>Gibraltar to Canary Islands</i>	56
AN33	<i>Gibraltar to Lesser Antilles</i>	58
AN34	<i>Gibraltar to Northern Europe</i>	59
AN35	<i>Gibraltar to Portugal</i>	59
AN36	<i>Gibraltar to Azores</i>	60
AN37	<i>Gibraltar to North America</i>	61
AN38	<i>Gibraltar to Atlantic Morocco</i>	63

Gibraltar is described as the gateway to the Mediterranean, although the opposite is equally true as, for westbound boats, the Strait of Gibraltar is the gateway to the Atlantic. One of the most frequented transit ports for yachts in the world, Gibraltar is particularly busy in spring, when boats make their way into the Mediterranean, and autumn, when the end of the sailing season produces a similar movement in the

opposite direction. Gibraltar is also a convenient place from which to visit neighbouring ports in North Africa, whether the colourful Tangiers in Morocco or the two remaining Spanish possessions of Mella and Ceuta.

As Gibraltar lies at the eastern end of the Strait which bears its name, eastbound boats are less dependent on weather conditions than those intending to sail through the Strait to the Atlantic



AN30 Routes from Gibraltar

beyond. A favourable forecast is essential on leaving Gibraltar as the Strait can turn into an insurmountable obstacle if weather conditions are not right. Ideally, westbound boats should wait for a *Levanter* or at least light westerly winds before leaving Gibraltar. Almost as important as the direction of the wind is the state of the tide and this should be played to one's advantage. If one leaves about three hours after HW Gibraltar, the tide will be contrary for only the first hour. After the tide slackens, by keeping to the Spanish side of the Strait, when the tide turns one should have a fair current at least as far as Tarifa. Because of the strong tidal sets, one should avoid sailing too close to the Spanish shore. In strong westerly winds, if one finds it impossible to make headway against them, one can anchor in the lee of Tarifa to wait for a break in the weather and a favourable tide. The situation usually improves significantly once the Strait has been left behind and a course is set for either Madeira or the Canaries. If bound for Northern Europe, a direct course is rarely possible since both winds and current along the Portuguese coast are normally contrary. If the Portuguese trades are still blowing, it is better to head offshore and favour the tack that makes most northing.

Going east from Gibraltar is usually easier, although it pays to wait for a favourable westerly wind. Timing one's departure to take advantage of the tide is less important because the west set-

ting currents along Europa Point are never strong enough to pose serious problems. If not bound for one of the ports along the Spanish Costa del Sol, it is better to stay offshore where the winds are usually steadier. Mediterranean routes from Gibraltar are described in chapter 22.

The weather in the immediate vicinity of Gibraltar can be very different from the weather of the general area. In the southern part of the Iberian peninsula from Cape St Vincent to Gibraltar the winds are more variable in all months. The Portuguese trades are felt less in this area, and in their absence there is an onshore SW or W sea breeze. Sailing conditions close to the Strait of Gibraltar are affected by the geography of the Strait. The wind usually either blows in or out of the Strait and can be quite strong at times. The strong easterly wind is called a *Levanter* and when this blows hard against the prevailing east setting current flowing through the Strait into the Mediterranean, it creates a short sharp sea, which can make it very difficult, and occasionally impossible, to reach Gibraltar from the Atlantic. The opposing *Poniente*, which is a strong W or SW wind, can make it even more difficult to sail in the opposite direction, out of Gibraltar into the Atlantic. The *Levanter* occurs most frequently from July to October and is associated with rain and reduced visibility. Also in summer the occasional small depression moves north from Morocco towards Gibraltar.

AN31 Gibraltar to Madeira

BEST TIME:	May to August
TROPICAL STORMS:	None
CHARTS:	BA: 4104 US: 104
PILOTS:	BA: 1, 67 US: 131, 143
CRUISING GUIDES:	<i>Atlantic Islands, Madeira Cruising Guide.</i>

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN310 Gibraltar 36°08'N, 5°22'W	AN311 Carnera 36°03'N, 5°25'W			
	AN312 Tarifa 35°59'N, 5°36'W			
	AN313 Paloma 35°59'N, 5°45'W			
	AN314 Espartel 35°50'N, 5°57'W	AN315 Fora 32°44'N, 16°39'W	Funchal	613
		AN316 Cima E 33°03'N, 16°17'W	Porto Santo	576
			33°03'N, 16°19'W	

Gibraltar should not be left in a strong westerly wind as the wind reinforced by the permanent flow of water from the Atlantic into the Mediterranean makes it almost impossible to beat one's way out of the Strait. An equally strong easterly wind blowing against the current does not improve matters much as it creates a short steep sea. Ideally Gibraltar should be left in light or easterly winds, but if this is not possible, it is better to keep to the edges of the Strait where the current is weaker. Detailed tactics for leaving Gibraltar are described at the beginning of this section. In daylight and good visibility one may decide to tack across to the African shore, where the current is weaker. Be aware of the large amount of shipping when crossing the traffic lanes and also to the fast moving ferry from Algeciras to Tangiers.

In favourable wind and tide conditions, the course runs parallel to the Spanish coast. Taking one's departure from WP AN310 an initial course is set for WP AN311 off Punta Carnera. Having left the Bay of Gibraltar, the course is altered for WP AN312 south of Tarifa light. The route continues on this course to keep out of the west going shipping lane. A course of 270° will take one to WP AN313, which clears the shallows off Punta Paloma. From there a direct course can be set for Madeira. As the shipping lanes converging on the Strait of Gibraltar have to be crossed at some point, tacking across should only be done when Cape Espartel can be cleared on that tack. The cape, at

the NW point of Africa, should not be approached too closely because of the overfalls in its vicinity. A direct course leads to WP AN315 east of Ilheu de Fora, a rocky islet with a powerful light off the eastern extremity of Madeira. From there the course runs along the south coast of the island to the capital Funchal. The alternative is to call first at Porto Santo and sail to WP AN316 east of Ilheu de Cima. Porto Santo should be approached with care, especially at night, as there are a number of dangers off its eastern coast.

During the summer months the steady Portuguese trades usually ensure favourable sailing conditions all the way to Madeira. At the beginning and end of summer, sailing conditions can be less pleasant and both calms and SW winds may be encountered en route. Passages in May and November are particularly vulnerable to this kind of weather, but between June and early October the prevailing northerly winds should provide a fast sail for most of the way. In strong SW winds, one may be forced to abandon one's intention to call at Madeira and continue to the Canaries without stopping. This course of action is taken every year by boats that have left either Northern Europe or the Mediterranean too late. As the small marina in Funchal gets extremely crowded in October and early November with boats stopping there on their way to the Canaries, bypassing Madeira at this time of year should be considered by anyone short of time.

AN32 Gibraltar to Canary Islands

BEST TIME:	May to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104			
	US: 104			
PILOTS:	BA: 1, 67			
	US: 131, 143			
CRUISING GUIDES:	<i>Canary Islands Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN320 Gibraltar 36° 08'N, 5° 22'W	AN321 Carnera 36° 03'N, 5° 25'W			
	AN322 Tarifa 35° 59'N, 5° 36'W			
	AN323 Paloma 35° 59'N, 5° 45'W			
	AN324 Espartel 35° 50'N, 5° 57'W			
	AN325 Morocco A 34° 00'N, 8° 30'W			
	AN326 Morocco B 32° 40'N, 10° 00'W		La Sociedad 29° 13.8'N, 13° 30'W	585
		AN327 Alegranza 29° 25'N, 13° 28'W	Puerto Calero 28° 55'N, 13° 42'W	608
		AN328 Isleta 28° 09'N, 15° 23'W	Las Palmas 28° 07.5'N, 15° 25.5'W	704

Leaving Gibraltar with a favourable tide, one does not need to go too close to the Spanish coast. Setting course for WP AN321, south of Punta Carnera, avoids any dangers. When leaving the Bay of Gibraltar, one should watch out for the fast ferry plying between Algeciras and Tangiers. As far as Tarifa it is better to stay in the inshore lane and steer for WP AN322 approximately 1 mile south of Tarifa light. This will keep one out of the west-going shipping lane. From there, a course of 270° leads to WP AN323 to clear the shallows off Punta Paloma. As one has to cross the shipping lanes, and if the winds are westerly, one should only tack when one is confident of clearing Cape Espartel on that tack. One should not go too close to this cape as there are overfalls in the area. By setting course for WP AN324 one stays clear of an area of confused seas off Cape Espartel. Better conditions are usually found farther off the African coast and therefore the course should stay outside the 100 fathom line. This can be done by setting a course which passes through two intermediate

waypoints, AN325 and AN326.

For boats intending to make their first Canarian landfall at Lanzarote, a course should be set for WP AN327 off the small island of Alegranza. The capital and main port on Lanzarote is Arrecife, although better docking facilities will be found at Puerto Calero five miles further down the coast. If time permits, one should consider stopping first at Graciosa, a small island north of Lanzarote, which has a small but well protected port at La Sociedad, on the north shore of the narrow separating Graciosa from Lanzarote.

For boats bound directly for Las Palmas and thus approaching Gran Canaria from the north, the conspicuous hump of La Isleta makes a perfect landfall. WP AN328 clears all dangers, including El Roque rock off Punta El Nido. 2.5 miles further south is the entrance to Las Palmas harbour, which in 1994 was being considerably enlarged. The eastern breakwater was being extended southwards and this is only shown on the latest charts.

Sailing conditions to the Canaries are normally

better than those encountered on the way to Madeira. From June to September the prevailing northerlies and a favourable current usually provide excellent sailing conditions along this route. In May and October the winds are less constant, although their direction continues to be predominantly northerly. November has a higher incidence of winds from other directions, but winds from the

northern quarter are still predominant. The passage to the Canaries should not be left too late in the season, as strong SW winds with rough seas can be encountered on this route after the end of October. Anyone intending to see more of the Canaries should plan on stopping first in Lanzarote, which is the best island from which to start visiting the Canary Islands in a logical sequence.

AN33 Gibraltar to Lesser Antilles

BEST TIME:	May to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012			
	US: 12			
PILOTS:	BA: 1, 67, 71			
	US: 131, 140, 143, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Yachtsman's Guide to the Windward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN330 Gibraltar 36°08'N, 5°22'W	AN331 Carnera 36°03'N, 5°25'W			
	AN332 Tarifa 35°59'N, 5°38'W			
	AN333 Paloma 35°59'N, 5°45'W			
	AN334 Espartel 35°50'N, 5°57'W	St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	3254
		Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	3196

This long passage is only done without calling either at Madeira or one of the Canary Islands by those in a great hurry, as both these island groups lie close enough to the recommended route as to warrant a short stop. Directions as far as Cape Espartel are given in route AN31.

The best time for this passage is in the summer, but an Atlantic crossing during this time, which is the hurricane season, cannot be recommended. Good conditions for a nonstop passage may also be encountered at the end of spring, beginning of summer (May or early June), when the chances of encountering a tropical storm en route are very low. The route at such a time will be close to the great circle course as favourable winds will be found most of the way across. This would be the case also during summer when, however, a crossing carries

too many risks, especially at the end of the summer. If this passage is made during the summer months, stations broadcasting early warnings of tropical depressions should be listened to regularly. As the trade wind belt lies further north during the summer months, a more direct course can be sailed across the Atlantic than in winter. Between May and July the frequency of hurricanes is quite low, but it increases after August, reaching a peak in September.

During the winter months, steady NE winds will be found only in lower latitudes, most probably south of latitude 25°N. The route at such a time will pass between the Canaries and Madeira and, depending on weather conditions, the strategy to be employed will be similar to the suggestions given for route AN51 (page 72).

AN34 Gibraltar to Northern Europe

BEST TIME:	May to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103 US: 126			
PILOTS:	BA: 1, 22, 27, 28, 55, 67 US: 143, 191			
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell Pilot to the English Channel vols. 1 & 2, Adlard Coles Pilot Pack 3.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN340 Gibraltar 36°08'N, 5°22'W	AN341 Carnera 36°03'N, 5°25'W AN342 Tarifa 35°59'N, 5°36'W AN343 Paloma 35°59'N, 5°45'W AN344 Vincent W 37°00'N, 9°05'W	Lizard 49°55'N, 5°10'W	Falmouth 50°09.5'N, 5°04'W	1002

Directions to sail through the Strait of Gibraltar are given in routes AN31 and AN32. If strong westerly winds are encountered after the Strait has been negotiated, it is better to stay on the port tack and, if conditions deteriorate, one may seek shelter in one of the ports or marinas along the northern shore. The marinas at Lagos and Vilamoura, on the Algarve coast, are convenient places in which to wait for a change of weather. See also route AN35.

After the Strait and the shallows off Cape Trafalgar have been cleared, a course should be set for WP AN344, 5 miles WSW of Cape St Vincent. From there the course runs roughly parallel to the Portuguese coast. During summer the prevailing

winds along the western shores of the Iberian peninsula are the Portuguese trades which make the task of reaching any northern destination extremely difficult. For those who are in a hurry it is better to head immediately offshore by sailing on the tack that makes most northing. Otherwise it might be easier to make short hops along the coast until better winds are found or Cape Finisterre is passed. Westerly winds may not be found until latitude 45°N is reached. Occasionally in late summer SW winds reach gale force in the Bay of Biscay when conditions can be very rough, so it is advisable to make this passage before the middle of August.

AN35 Gibraltar to Portugal

BEST TIME:	April to May, September
TROPICAL STORMS:	None
CHARTS:	BA: 87 US: 51150, 51160
PILOTS:	BA: 67 US: 143
CRUISING GUIDES:	<i>Atlantic Spain and Portugal.</i>

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance MO
AN350 Gibraltar 36°08'N, 5°22'W	AN351 Carnera 36°03'N, 5°25'W			
	AN352 Tarifa 35°59'N, 5°36'W			
	AN353 Paloma 35°59'N, 5°45'W			
	AN354 Hoyo 36°03'N, 6°20'W			
	AN355 Huelva 37°05.5'N, 6°49.5'W	AN356 off Vilamoura 37°01'N, 8°07'W	Vilamoura 37°04.5'N, 8°07'W	155
		AN357 Vincent W 37°00'N, 9°05'W		
		AN358 S Channel 38°35'N, 9°20'W	Lisbon 38°41.5'N, 9°12'W	800

Directions for negotiating the Strait of Gibraltar are given in routes AN31 and AN32. From WP AN353, which clears the shallows off Ponta Paloma, set course for WP AN354 so as to stay outside the shallows off Cape Trafalgar. From this point the course becomes NNW and runs across the Bay of Cadiz through shallow waters that rarely exceed 60 feet. A hazard to watch out for along this coast are the large tunny nets, which are supposed to be buoyed and marked by a fishing boat, but often are not. For this reason it is not prudent to sail too close inshore, especially at night. The trip can be broken at Mazagon, at the river entrance into Huelva, from where Columbus left on his historic voyage to the New World in 1492. A new marina is now operating at the river entrance from where it is possible to visit the various sites associated with Columbus in Palos and the surrounding area. The entrance to the river is clearly marked by a light tower and the river is well buoyed. WP AN355 is

the landfall buoy one mile SE of the river entrance.

If a strong *Levanter* is blowing in the Strait of Gibraltar, easterly winds will continue into the Bay of Cadiz, although of diminished strength. Otherwise, on summer days, there will be an alternation of breezes, a sea breeze from the SW starting around noon to be followed by a lighter land breeze from the NW.

The Algarve coast has witnessed a huge development in recent years and landmarks can be confusing. The entrance into Vilamoura marina is not easy to spot to those not familiar with the area, but WP AN356 about one mile south of the entrance, should help locate it. Boats bound for the west coast of Portugal should set course for WP AN357, 5 miles WSW of Cape St Vincent. From that point strong northerly winds can be expected during summer, but as there is an abundance of good ports along the entire Portuguese coast this section can be easily covered in short hops.

AN36 Gibraltar to Azores

BEST TIME:	May to August
TROPICAL STORMS:	None
CHARTS:	BA: 4012 US: 12
PILOTS:	BA: 67 US: 140, 143
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN360 Gibraltar 36°08'N, 5°22'W	AN361 Carnera 36°03'N, 5°25'W			
	AN362 Tarifa 35°59'N, 5°36'W			
	AN363 Paloma 35°59'N, 5°45'W			
	AN364 Espartel 35°50'N, 5°57'W	AN365 Miguel 38°02'N, 25°10'W	Horta 38°32'N, 28°37.5'W	1135
		AN366 Garça 37°40'N, 25°23'W	Ponta Delgada 37°44'N, 25°40.5'W	994

The passage benefits from favourable winds for at least the first half, as the prevailing northerly winds of summer are felt as far as 300 miles off continental Europe and often further than that. At some point an area of light winds or calms will be encountered, after which the winds will probably come from either W or SW. This will depend entirely on the position of the Azores high. The further NW this is situated from its normal position, the higher the likelihood of having favourable NE winds for most, or all, of the passage to the Azores.

Directions for negotiating the Strait of Gibraltar are given in routes AN31 and AN32. If strong SW winds are encountered west of the Strait it is better to put into a port, such as Vilamoura (37°04'N, 8°07'W), and wait there for a change. Directions will then be the same as for route AN35. If strong winds are encountered after passing Cape St Vincent, the area of the Gettysburg and Gorringer Banks (36°30'N, 12°00'W and 36°45'N, 11°10'W) should be avoided as breaking or confused seas

have been experienced in that area. Boats intending to sail nonstop to Horta should set a course for WP AN365, 10 miles N of São Miguel. From there the route passes north of Pico. If strong SW winds are encountered among the islands, one can either seek shelter in a port on the north coast of Pico, such as São Roque, or sail towards Terceira, where one can wait for a change of weather at Angra do Heroísmo, on that island's south coast.

The direct route to Ponta Delgada leads to WP AN366, 3 miles south of Ponta da Garça, on the south coast of the island of São Miguel. Boats coming from ports south of Lisbon may prefer to make their first landfall there rather than further west. There is a good marina at Ponta Delgada, the capital of the Azores, which has the best facilities in the archipelago. Another good starting point for a cruise among the islands is the island of Santa Maria, at the southeastern extremity of the archipelago, from where the other islands can be visited in logical succession.

AN37 Gibraltar to North America

BEST TIME:	May to June
TROPICAL STORMS:	June to November
CHARTS:	BA: 4011 US: 120
PILOTS:	BA: 67, 69 US: 140, 143
CRUISING GUIDES:	<i>Azores Cruising Guide, Yachting Guide to Bermuda, The Atlantic Crossing Guide, Cruising Guide to Newfoundland, Cruising Guide to the Nova Scotia Coast, Yachting Guide to the South Shore of Nova Scotia, Coastal Cruising Guide to the Atlantic Coast, Cruising Guide to the New England Coast.</i>

ROUTES IN THE NORTH ATLANTIC

Waypoints:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN37A				
AN370 Gibraltar	AN371 Hoyo	AN376 Chesapeake		3323
36°08'N, 5°22'W	36°00'N, 6°20'W	38°45'N, 75°45'W		
		AN377 Brenton	Newport	3044
		41°24'N, 71°16'W	41°29'N, 71°20'W	
		AN378 off Halifax	Halifax	2672
		44°25'N, 63°25'W	44°38'N, 63°34'W	
	AN372 Race	AN379 off St John's	St John's	2290
	46°25'N, 53°10'W	47°30'N, 52°39'W	47°34'N, 52°42'W	
Route AN37B				
AN370 Gibraltar	AN371 Hoyo			
	AN373 Garça			
	37°40'N, 25°23'W			
	Ponta Delgada	AN376 Chesapeake		3349
	37°44'N, 28°40'W	AN377 Brenton	Newport	3110
		AN378 off Halifax	Halifax	2747
		AN379 off St John's	St John's	2331
Route AN37C				
AN370 Gibraltar	AN371 Hoyo			
	AN374 Terceira			
	38°28'N, 27°00'W			
	Horta	AN376 Chesapeake		
	38°32'N, 28°37.5'W	AN377 Brenton	Newport	3097
		AN378 off Halifax	Halifax	2730
		AN379 off St John's	St John's	2308
Route AN37D				
AN370 Gibraltar	AN375 Bermuda E	AN376 Chesapeake		
	32°22'N, 64°38'W	AN377 Brenton	Newport	3544
	St George's	AN378 off Halifax	Halifax	3648
	32°22'N, 64°40'W	AN379 off St John's	St John's	3973

The majority of boats bound for North America from the Mediterranean prefer to take the classic route via the Canaries, which, although considerably longer, has a higher proportion of favourable winds. The direct route (AN37A) has certain attractions, firstly because it can be done at the beginning of summer, and secondly because it can be much speedier. The best time for this passage is at the beginning of summer, but if it is undertaken after July, attention must be paid to the possibility of hurricanes. This applies particularly to those sailing to ports in areas of the USA affected by tropical storms. On the other hand, boats bound for Canadian ports, such as St John's in Newfoundland, should avoid making the passage

early in the season because of the danger of ice. Directions and waypoints as far as the western end of the Strait of Gibraltar are the same as those for route AN36. Having reached the open sea, the direct route across the Atlantic will depend entirely on existing weather conditions, which will dictate whether the Azores are left to port or starboard. A route south of the Azores direct to Bermuda (AN37D) has a certain attraction as the winds will be met at a better angle once the area of prevailing S or SW winds is reached close to Bermuda. Boats bound for Newfoundland and even Nova Scotia will probably peel off this southern route sooner, but those heading for ports south of New York may find a stop in Bermuda too tempting to miss.

As the direct route passes close to the Azores, most boats make at least a brief stop there after the first 1000 miles at sea. Whether a stop in the Azores is intended or not, directions for the route between Gibraltar and that area are given in routes AN24 (page 52) and AN36. If a stop in the Azores is considered, from WP AN371 at the western end of the Strait of Gibraltar, the direct route to Ponta Delgada (AN37B) leads to WP AN373, 3 miles south of Ponta da Garça, on the south coast of the island of São Miguel. Although Ponta Delgada is closer to this route, and there is a good marina there, the traditional port of call remains Horta, on the island of Faial. The latter is probably a better starting off point for the subsequent leg across the Atlantic.

If intending to sail nonstop to Horta (route AN37C), from WP AN371 a course should be set for WP AN374, SE of the island of Terceira. Depending on weather conditions, from that point Horta can be reached by sailing either north or south of the island of Pico. In strong SW winds it is better to stay north of Pico and, if the weather deteriorates, one can seek shelter at São Roque, on the north coast of Pico, or at Velas, the main port on São Jorge. Terceira itself has a good harbour at Angra do Heroísmo, although it is open to the south and should be avoided in strong winds

from that direction. In strong SW winds, the channel between Pico and Faial, in the approaches to Horta, can be affected by violent gusts. These, and the north setting current, should be taken into account if attempting to enter Horta under such conditions. A last port in the Azores, where one can seek shelter and wait for an improvement in the weather, is at Lajes, on the SE point of Flores, where a new breakwater has greatly improved the protection of this port. From the Azores the voyage may continue nonstop to one's destination.

Those that have stopped in the Azores should be prepared to wait there until a good long term forecast assures a safe and speedy passage for the continuation of their voyage. Directions for the routes from the Azores to the USA and Canada are given in AN138 and AN139 (page 149). Boats planning to stop in Bermuda may be able to sail a direct course from the Azores to WP AN375, east of the entrance into St George's Harbour. Such a direct route from the Azores to Bermuda has the best chance of favourable winds. This is described in detail in AN137 (page 148). The most likely winds to be encountered on approaching Bermuda are from the SW, but if favourable conditions persist it is best to bypass Bermuda altogether and sail nonstop to one's final destination.

AN38 Gibraltar to Atlantic Morocco

BEST TIME:	May to September			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104			
	US: 104			
PILOTS:	BA: 1, 67			
	US: 143			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN380 Gibraltar 36°08'N, 5°22'W	AN381 Carnera 36°03'N, 5°25'W		Tangiers 35°17'N, 5°48'W	55
	AN382 Tarifa 35°59'N, 5°36'W			
	AN383 Paloma 35°59'N, 5°45'W			
	AN384 Espartel 35°50'N, 5°57'W		Casablanca 33°37'N, 7°36'W	191
			Agadir 30°25'N, 9°38'W	409

ROUTES IN THE NORTH ATLANTIC

With the exception of Tangiers, which is conveniently located on the south side of the Strait of Gibraltar, most boats avoid calling at Moroccan ports, although those on the Atlantic coast could make convenient stops for boats sailing to the Canaries or West Africa. There are several reasons for this reluctance, the main ones being the complicated formalities, bad pollution in the larger ports, and frequent theft from visiting yachts. Facilities for sailing boats are also lacking, although the few yacht clubs are generally welcoming.

Tangiers, being used to receiving large numbers of visiting boats and thus having relatively easier formalities, is often overcrowded. South of Cape

Espartel the predominant features are the large Atlantic swell and the lack of natural harbours, with the notable exception of Mogador. A restricted zone is in force between Rabat and Mohamedia, and any boat straying within 12 miles of the coast may be chased away by Moroccan navy vessels. Casablanca is the largest port along this coast and, for the time being, has the best repair facilities. A fast developing port with adequate facilities is Agadir, which is used as a base by a large number of foreign fishing boats. A marina is under construction in Agadir and, when it is finished, it will be a convenient place to leave a boat while visiting the interior of this interesting country.

AN40 ROUTES FROM MADEIRA

AN41 <i>Madeira to Canary Islands</i>	65
AN42 <i>Madeira to Lesser Antilles</i>	67
AN43 <i>Madeira to Azores</i>	67
AN44 <i>Madeira to Northern Europe</i>	68
AN45 <i>Madeira to Portugal</i>	68
AN46 <i>Madeira to Gibraltar</i>	69

Until not so long ago the only yachts that used to visit Madeira were cruising boats on their way to the Canaries or Caribbean, and occasionally a few racing boats from mainland Portugal. The situation has changed as more boats spend the winter in the Canaries and use Madeira as a convenient stopover on their return voyage to the Mediterranean. The most frequented route, however, remains that to the Canaries, which is at its busiest in October when hundreds of boats make their way south as part of the annual migration to the Caribbean. At this time Madeira is crowded with boats and the marina at Funchal can barely cope with the amount of visitors. Funchal is best avoided at such times and a stop in neighbouring Porto Santo should be considered.

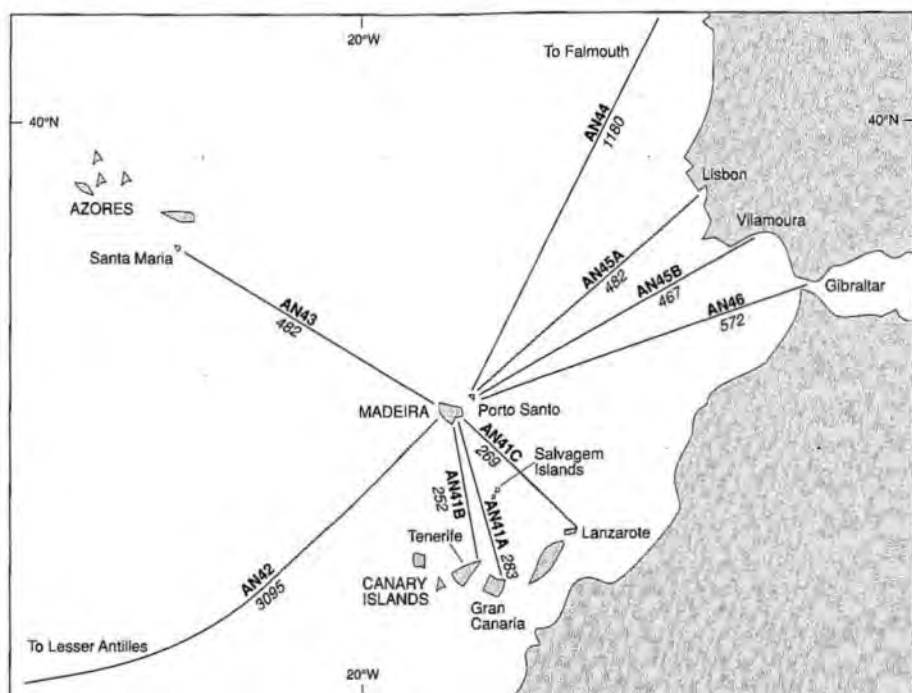
The prevailing summer winds are northeasterly, but because of the height of Madeira, the wind funnels around and can blow from the SW on the southern coast when it is NE offshore. The smaller island of Porto Santo is also high but it does not block the NE wind which accelerates down the mountain blowing in gusts in its lee. In winter the winds are more variable and come from all directions. The North Atlantic fronts that move across

the ocean from west to east occasionally take a more southerly track and affect the island, but their effect is less strong than in the Azores. Dust haze, which reduces visibility, can occur when easterly winds blow from the African continent.

A small number of boats choose to start their Atlantic crossing in Madeira rather than take the traditional route via the Canaries. Such a decision makes sense in late winter or spring when the NE trade winds reach further north and the route from Madeira to the Caribbean bypasses the Canaries altogether. Madeira is also a good starting point if one's West Indian destination is one of the more northern islands, such as Antigua or Virgins. The transatlantic route depends very much on access to weather information to be able to know how long one should sail on a SW course before turning west.

Northbound passages from Madeira are seldom easy on account of the prevailing northerly winds. Most boats bound for a port in NW Europe may prefer to make a detour to the Azores and stop in one of the easternmost islands, such as Santa Maria or São Miguel. If bound for mainland Portugal one has little choice and if the winds are

AN40 ROUTES FROM MADEIRA



AN40 Routes from Madeira

from the NE, as is most likely in summer, one must be prepared to beat all the way. The same applies to boats heading for Gibraltar and the Mediterranean with the added complication that the NE winds experienced offshore often turn into easterlies as one approaches the Strait of

Gibraltar. If time permits one should wait in Madeira for a spell of SW winds, which normally occur when a depression passes to the north of the island. Such conditions will ensure a fast passage all the way into the Mediterranean.

AN41 Madeira to Canary Islands

BEST TIME:	May to October
TROPICAL STORMS:	None
CHARTS:	BA: 3133 US: 104
PILOTS:	BA: 1 US: 143
CRUISING GUIDES:	<i>Canary Islands Cruising Guide, Atlantic Islands, Madeira Cruising Guide</i>

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN41A				
AN410 Funchal 32°36'N, 16°54'W	AN411 Salv. Grande 30°10'N, 15°45'W	AN412 Isleta 28°09'N, 15°23'W	Las Palmas 28°07.5'N, 15°25.5'W	283
Route AN41B				
AN410 Funchal	AN413 Salv. Pequena 30°00'N, 16°15'W	AN414 Anaga 28°36'N, 16°07'W	Santa Cruz de Tenerife 28°29.5'N, 16°12.5'W	252
Route AN41C				
AN410 Funchal		AN415 Graciosa 29°25'N, 13°35'W	La Sociedad 29°13.8'N, 13°30'W	269

This is normally a fast downwind run, particularly during summer. After the beginning of October, although northerly winds are still most common, winds from other directions increase in frequency. From November onwards strong SW winds occur at times and rough seas are encountered between the two island groups. A favourable current of approximately 1/2 knot is normally experienced on this passage.

The direct route passes very close to the Salvagem Islands, a group of uninhabited islands lying halfway to the Canaries and straddling the 30th parallel. The course for Gran Canaria (AN41A) passes between the two islands and, unless sailing by in good light and weather, the course should be altered to pass at a safe distance to the east of Salvagem Grande, such as WP AN411, as there are a number of dangerous rocks close to the islands. From there the route continues towards WP AN412 in the approaches to Las Palmas.

The direct course for Tenerife (AN41B) passes through WP AN413 at a distance of some 10 miles west of Salvagem Pequena. Landfall is made at WP AN414, off Punta de Anaga, the NE point of Tenerife. From there, the course runs parallel to the coast to the newly established marina inside

the fishing harbour, some 3 miles north of the capital Santa Cruz.

The course for Lanzarote (AN41C) passes at a safe distance to the NE of the Salvagem Islands. The small island of Alegranza, north of Lanzarote, can be passed on either side by boats going directly to Arrecife. For those who prefer to stop first at Graciosa, landfall should be made on the west side of the latter by setting course for WP AN415 about 5 miles NW of Graciosa, before entering Estrecho del Río, the channel separating Graciosa from Lanzarote. Although not a port of entry, boats may stop for a short time at La Sociedad, the main port and settlement on Graciosa, before proceeding to Arrecife, the capital of Lanzarote, and clearing in there.

Those intending to stop in one of the Salvagem Islands must obtain a special permit, which is issued in Funchal by the Department of Fisheries within the Autonomous Government of Madeira. In bad weather, yachts are allowed to anchor in Enseada das Cagarras (30°08.3'N, 15°52.2'W) on the SW side of Salvagem Grande, but access ashore is only allowed to those in possession of a landing permit. There are wardens stationed on both islands and they can be contacted on VHF channel 16.

AN42 *Madeira to Lesser Antilles*

BEST TIME:	January to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012 US: 120			
PILOTS:	BA: 1, 71 US: 140, 143, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Yachtsman's Guide to the Windward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN420 Funchal 32°36'N, 16°54'W	AN421 27°25'N, 15°30'W			
	AN422 20°00'N, 30°00'W			
	AN423 15°00'N, 40°00'W	AN424 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04'N, 60°58'W	3095
		AN425 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°45.5'W	3139

Because of the strategic location of the Canaries on the route to the Eastern Caribbean, only a small number of boats choose to sail there directly from Madeira. Nevertheless, Madeira can make a good starting point for such a transatlantic passage provided one has access to a good weather picture of the North Atlantic which shows the northern limits of the NE trade winds. If these extend as far as 25°N it is possible to lay a SW course from Madeira to pass to the west of the Canary Islands.

The waypoints suggested above are based on the traditional route which initially has a SW slant into

lower latitudes, where the likelihood of finding favourable winds is always higher. At the beginning of winter, however, the trade winds rarely extend beyond latitude 20°N and if this is the case one might as well stop in the Canaries as the course runs virtually through the archipelago. If only a short stop in the Canaries is envisaged, one should choose one of the more westerly ports, such as Santa Cruz de la Palma, which makes a better starting point for the subsequent transatlantic leg. Detailed routing information for the transatlantic passage is given in route AN51 (page 72).

AN43 *Madeira to Azores*

BEST TIME:	May to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104 US: 12			
PILOTS:	BA: 1, 67 US: 143			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN430 Funchal 32°37'N, 16°54'W	AN432 Pargo 32°48'N, 17°20'W	AN433 Sta Maria 36°55'N, 25°07'W	Vila do Porto 36°56'N, 25°08.5'W	482
AN431 off Porto Santo 32°58'N, 16°25'W		AN433 Sta Maria	Vila do Porto	490

ROUTES IN THE NORTH ATLANTIC

During summer, when the Portuguese trade winds reach as far south as Madeira, this will be a close hauled passage, although the Azores can normally be reached on one tack. If leaving from Funchal, the high island of Madeira normally blocks northerly winds so that a light westerly breeze will be felt until one reaches the end of the island. From Funchal, the course runs parallel to the coast as far as Ponta do Pargo, the western extremity of the island. From WP AN432, off Ponta do Pargo, a direct course leads to WP AN433 in the SE approaches to Vila do Porto, the main

harbour of Santa Maria, the most southeastern Azorean island. The harbour provides good shelter from all directions except the south.

If times allows it, a visit to Porto Santo will provide a slightly better starting point. In such a case, from WP AN431, off Porto Santo's SW point, the route passes on the weather side of Madeira Grande. This should be passed at a safe distance as in strong northerly winds its north coast is a dangerous lee shore. Landfall will be made at WP AN433, in the approaches to Vila do Porto.

AN44 Madeira to Northern Europe

BEST TIME:	March to May
TROPICAL STORMS:	None
CHARTS:	BA: 4011 US: 120
PILOTS:	BA: 1, 22, 27, 67 US: 140, 143, 191
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell Pilot to the English Channel vols. 1 & 2, Adlard Coles Pilot Pack 3.</i>

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
AN440 Funchal 32°37'N, 16°54'W	AN441 Garajau 32°38'N, 16°50'W			
	AN442 Fora 32°45'N, 16°38'W	AN443 Lizard 49°55'N, 5°10'W	Falmouth 50°09.5'N, 5°04'W	1180

A nonstop passage to the English Channel is difficult to accomplish, particularly during the summer months when the Portuguese trades will force one to take a long starboard tack. This will put the boat almost on a heading for the Azores. For this reason, some boats include the latter on their itinerary. In such a case the same directions apply as those for route AN43.

During spring, and occasionally also in summer, a spell of SW winds may allow a direct course to

be sailed to Northern Europe. Having sailed around the eastern extremity of Madeira, a rhumb line course, from WP AN442 off Ilheu de Fora to WP AN443 off Lizard Point in the approaches to the English Channel, passes some 60 miles west of Cape Finisterre. Persistent northerly winds are a feature of summer and so this passage should be planned for middle or late spring when there is a better chance of favourable winds.

AN45 Madeira to Portugal

BEST TIME:	April to May
TROPICAL STORMS:	None
CHARTS:	BA: 4104 US: 104
PILOTS:	BA: 1, 67 US: 143
CRUISING GUIDES:	<i>Atlantic Spain and Portugal.</i>

AN40 ROUTES FROM MADEIRA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN45A				
AN451 off Porto Santo 33°03'N, 16°15'W		AN452 S Channel 38°35'N, 9°20'W	Lisbon 38°41.5'N, 9°12'W	482
Route AN45B				
AN451 off Porto Santo		AN453 off Vilamoura 37°03'N, 8°08'W	Vilamoura 37°04.5N, 8°07'W	467

Mainland Portugal lies to windward of its offshore dependency for most of the year and therefore this passage is best undertaken before the onset of the NE winds of summer. At the beginning of summer, before they become fully established, these winds blow in spells of a few days at a time, so it is worth waiting for a lull before leaving. A spate of strong NE winds is sometimes followed by one or two days of calms, when it may be possible to gain some useful mileage by motoring. The occasional front, which may generate SW winds, can also be used to one's advantage.

Whether bound for Lisbon (AN45A) or Vilamoura, on the Algarve coast (AN45B), Porto Santo makes a better starting point than Funchal.

From WP AN451, east of Porto Santo, the direct course to Lisbon crosses an area of shallows in the vicinity of the Gettysburg Seamount, which should be avoided in strong winds because of breaking seas. Boats bound for Lisbon should set a course for WP AN452, close to the entrance into South Channel that leads through an area of shallows at the mouth of the Tagus River. The Portuguese capital lies approximately 8 miles upstream on the north shore of the river.

The direct course to Vilamoura also starts off from WP AN451, off the east coast of Porto Santo, and leads to WP AN453, one mile SW of the entrance into the marina.

AN46 Madeira to Gibraltar

BEST TIME:	April to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104 US: 104			
PILOTS:	BA: 1, 67 US: 148			
CRUISING GUIDES:	<i>Yacht Scene.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN461 off Funchal 32°42'N, 16°38'W	AN463 Esparteil 35°52'N, 6°00'W AN464 Paloma 35°59'N, 5°45'W AN465 Tarifa 35°59' N, 5°36'W AN466 Carnera 36°03'N, 5°25'W	AN467 Gibraltar 36°08'N, 5°22'W	Marina Bay 36°09'N, 5°21'W	598

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN462 off Porto Santo 33°03'N, 16°15'W	AN463 Espartel AN464 Paloma AN465 Tarifa AN466 Carnera		AN467 Gibraltar Marina Bay	572

Directions for this route are similar to those for AN45 with the added complication that any NE winds, which may have been experienced offshore, will become easterlies on approaching the Strait of Gibraltar. Ideally, this passage should be undertaken in spring when the chances of SW winds are greater than during summer. Occasionally, in summer, when strong NE winds blow offshore, once the longitude of Cape St Vincent has been passed, local weather conditions

take over. A SW day breeze can then be expected, which usually springs up around noon and lasts as far as the Strait of Gibraltar.

From WP AN461, east of Madeira, or WP AN462, east of Porto Santo, a direct course leads to WP AN463, some 5 miles NW of Cape Espartel, in the approaches to the Strait of Gibraltar. Directions for negotiating the Strait are given in Routes AN16 and AN21 (pages 44 and 49).

AN50 ROUTES FROM THE CANARY ISLANDS

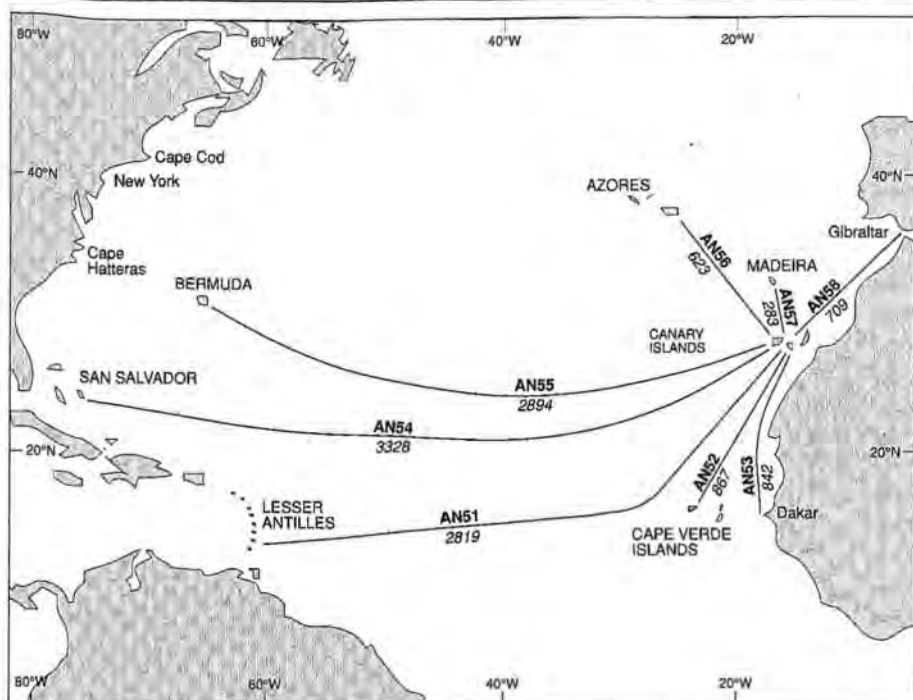
AN51 <i>Canary Islands to Lesser Antilles</i>	72
AN52 <i>Canary Islands to Cape Verde Islands</i>	74
AN53 <i>Canary Islands to West Africa</i>	75
AN54 <i>Canary Islands to Bahamas</i>	76
AN55 <i>Canary Islands to Bermuda</i>	77
AN56 <i>Canary Islands to Azores</i>	78
AN57 <i>Canary Islands to Madeira</i>	78
AN58 <i>Canary Islands to Gibraltar</i>	79

Sailing to the Canaries has never been considered difficult as the prevailing northerly winds ensure a fast downwind passage from Europe or the Mediterranean at most times of the year. This was the main reason for their popularity in the past as a port of call for ships on the trade routes to Africa, the Orient, and the Americas. The type of ship may have changed with the passing of time but the reasons remain the same for the 1000 or so cruising boats which call at the Canaries every year. They arrive almost without exception from the north, the southbound passages being usually made at the end of summer or during autumn, for most modern sailors treat the Canaries as a mere staging post on their way to the Caribbean, and less commonly to West Africa or South America. However, this situation is gradually changing as more yachts spend longer cruising the Canaries, while others are making their permanent base or

chartering there. Every year more boats are seen cruising the islands and the facilities available to them are constantly improving.

For most boats the main destination on leaving the Canaries is the Caribbean. The time of departure from the Canaries is crucial, both for the conditions to be encountered en route and those expected on the other side of the ocean. The hurricane season in the Caribbean in theory lasts about six months, although the really dangerous period is August to October, with September the peak month for hurricanes. Most sailors plan to cruise the West Indian islands between December and April, which is not only the safest time of year but also has the pleasantest weather, with little rain, agreeable temperatures, and the trade winds blowing steadily throughout the winter months. Therefore a late November or early December departure from the Canaries suits most people's

AN50 ROUTES FROM THE CANARY ISLANDS



AN50 Routes from the Canary Islands

plans and this is the time when the majority of boats leave the Canaries for their transatlantic passage. An earlier departure is not recommended, mainly because of the risk of a late hurricane, but also because the winter trades are seldom established before the second half of November. From the end of November until April the NE trade winds usually blow south of 20°N, their average strength gradually increasing during February and March. Although winds continue to be favourable, summer passages are not recommended for reasons of safety as the risk of hurricanes is too high. As most passages take place in late November or early December, the traditional practice has been to reach lower latitudes as quickly as possible thereby maximising the chances of finding the trade winds. Another good reason to make southing on leaving the Canaries is to be out of the influence of the Atlantic lows. Low pressure systems moving across the Atlantic in winter occasionally deviate from their usual NE

track and reach eastwards as far south as latitude 40°N and even lower. As a consequence, SW or W winds are generated as far south as latitude 20°N, and occasionally even further south. For those unable to obtain up to date information on the weather systems of the North Atlantic the best tactic is to make most of their crossing on the latitude of their Caribbean destination, or even slightly further north in the case of those bound for Antigua or the Virgin Islands.

Although the majority of boats leaving the Canaries are bound for the Caribbean, usually direct or less commonly via the Cape Verdes, there are some who first spend some time cruising West Africa before setting off across the Atlantic. The best time to sail south to either the Cape Verdes or West Africa is winter, when favourable winds will be found all the way to Senegal. The Canaries are also a useful springboard for those sailing to Brazil or other destinations in South America. Sailing from the Canaries to the Mediterranean or

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Northern Europe is a more difficult undertaking on account of the prevailing northerlies that make passages in the opposite direction so easy. The best route for a return voyage to Northern Europe is via Madeira and possibly the Azores. A detour to Madeira ought to be considered by those whose destination is Gibraltar or ports on the south coast of the Iberian peninsula. Although the prevailing winds are from NE, winds from SW are not uncommon at the end of spring or beginning of summer, when most boats bound for the Mediterranean make this passage. The suggested stop in Madeira or Porto Santo allows one to wait there for a favourable change of weather.

The prevailing winds in the Canaries are NE throughout the year, being strongest in July and August and lightest in October and November. The high volcanic islands cause some local variations in both wind direction and strength. As a rule there

are different winds in the lee of the islands compared to the coasts exposed to the trade winds. When the NE trades are blowing strongly, an opposing wind usually blows on the other side of the island, varying in strength with the strength of the trade wind. A funnelling effect is also felt along the coasts of some of the mountainous islands and the trades can be accelerated by up to 15 knots in places.

The Atlantic lows rarely come as far south as the Canaries, although small lows do develop near the islands themselves and move northeast towards Gibraltar or east towards Africa. Gales are rare, although occasionally these local depressions bring strong S or SW winds. In summer months a strong easterly wind can blow hot from Africa, the air being laden with dust, which reduces visibility considerably.

AN51 Canary Islands to Lesser Antilles

BEST TIME:	Mid-November to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012			
	US: 120			
PILOTS:	BA: 1, 71			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Yachtsman's Guide to the Windward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN510 Las Palmas 28°07'N, 15°24'W	AN511 Canaria S 27°25'N, 15°30'W			
	AN514 20°00'N, 30°00'W			
	AN515 15°00'N, 40°00'W	AN516 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	2819
		AN517 Martinique 14°22'N, 60°51'W	Fort de France 14°36'N, 61°05'W	2830
		AN518 Barbados 13°02'N, 59°23'W	Bridgetown 13°06'N, 59°38'W	2749
		AN519 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	2862
AN512 Los Cristianos 28°02'N, 16°43'W	AN513 27°30'N, 18°00'W			
	AN514			
	AN515	AN516 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	2738
		AN517 Martinique 14°22'N, 60°51'W	Fort de France 14°36'N, 61°05'W	2748
		AN518 Barbados 13°02'N, 59°23'W	Bridgetown 13°06'N, 59°38'W	2668
		AN519 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	2781

This classic trade wind route has been plied by an enormous variety of vessels in the 500 years since Christopher Columbus himself set sail from the Canary Islands to expand the limits of the known world. Although a lot has been learnt about prevailing winds and weather forecasting in the intervening years, the routing suggestions made by Columbus as a result of his four voyages to the Caribbean are still valid and can hardly be improved upon. His two fastest passages took 21 days, an excellent time even by today's standards, following a track very close to the optimum route for the time of year. On both those voyages, a SW course was sailed by the fleet until steady trade winds were found in the vicinity of latitude 20°N and only then was the course changed to the west. This essential rule of not setting a course for the desired destination until well inside the trade wind belt has been followed to advantage by all navigators since.

On leaving Las Palmas it is usually best to sail due south before altering course to SW. The only time when it may pay to go around the north of Gran Canaria is in SW winds and then only if it is possible to pass the SE extremity of Tenerife on one tack. The alternative is to stay on the port tack and pass north of Tenerife and then south of La Palma. However, these are unusual conditions since over 90 per cent of the time winds are from the northerly quarter and therefore a southerly course, as recommended, should be taken. Having left Las Palmas at WP AN510, one mile SSE of the harbour, one should not be tempted to turn SW too soon as the wind shadow of the island can extend as far as 20 miles. A convenient point to make for is WP AN511. Depending on weather conditions, from there a course can be set to WP AN514. This was the traditional turning point, from where sailing boats used to set course for the island of destination. With better weather information at their disposal, modern navigators should only use this waypoint as a point of reference and make for it only if such action is justified by existing weather conditions.

Boats leaving from other ports in the Canaries have the choice of passing south or north of El Hierro. If leaving from Los Cristianos, on the south coast of Tenerife, from WP AN512 a course can be set for WP AN513 and thence for WP AN514. Another popular departure port is Santa Cruz on the island of La Palma. On leaving that port, a southerly course should be taken to the southern

tip of the island, from where the course should be set for WP AN514.

Every book that has been written on transatlantic voyaging has something to say about the optimum route for a trade wind crossing, although very little can be added to what Columbus found out himself. The first concern is to move as soon as possible out of the region of calms and variable winds which surround the Canary Islands. With a bit of luck a northerly wind may spring up; otherwise one must be prepared to wait or motor. The old advice to make for a point at 25°N 25°W needs some qualification as the winter trades seldom blow consistently as far north as latitude 25°N, so this suggestion should only be followed in summer time. A more valid and often repeated suggestion was to sail SSW for 1000 miles on leaving the Canaries to pass between 200 and 300 miles north-west of the Cape Verde Islands before turning west. This suggestion to pass close to the Cape Verdes still makes sense as steady ENE winds are usually found in their latitude. Nevertheless the added mileage of such a detour must also be taken into account. A more direct route, which crosses latitude 20°N in about 30°W (WP AN514) and latitude 15°N in about 40°W (WP AN515), will probably find the trade winds slightly later but has the advantage of being shorter. Unfortunately there is no hard and fast rule, as weather can vary from one year to another and in some years successful fast passages have been made by boats taking the shortest route across.

The direction of the NE trade winds becomes more easterly as one moves west, and they usually include a southern component as summer approaches. Their strength is not very consistent either and the average force 4 mentioned in some publications is simply an *average* and nothing else. Although gale force winds are rarely experienced in winter, except in squalls, between December and March the trades can blow at force 6 for days on end accompanied by a correspondingly high swell. The swell itself is only regular and steady in direction if the wind has been blowing from the same quarter over a longer period, otherwise a cross swell is not uncommon on this route, with a wind swell being superimposed over another swell generated by some storm many thousands of miles away. In some years the uncomfortable swell has caused more complaints among transatlantic voyagers than the strength of wind, or the lack of it. It would appear that practically no voy-

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age is spared at least one calm period on this run, such calms lasting from a few hours to several days. They are usually followed by a burst of trade winds heralded by a procession of squalls. This route has the benefit of both the Canary Current and North Equatorial Current which set SW and W at an average rate of 1/2 knot. Their constancy, however, is not too reliable, although their direction is.

The above directions apply with small adjustments to all destinations in the Lesser Antilles, from Trinidad in the south to Antigua in the north. After the trade winds have been found the best course can be set for any particular island and the last few hundred miles will probably be sailed on its latitude. The route to the Virgin Islands passes so close to Antigua that it is advisable to make landfall there before proceeding. The same recommendation applies in the case of any islands to leeward of Antigua.

The most popular transatlantic landfalls in the Eastern Caribbean are:

AN516 St Lucia, 4 miles east of Cape Marquis,

on the NE coast of St Lucia. Having sailed along the north coast of St Lucia, the marina in Rodney Bay makes an excellent landfall where entry formalities can be completed.

AN517 Martinique, 3 miles SSE of Martinique. The nearest place to complete formalities is Cul de Sac du Marin, a small port on the SE tip of the island. This is more convenient than the capital Fort de France, which is another 25 miles up the coast.

AN518 Barbados, 9 miles east of South Point, the southern extremity of Barbados. The Shallows, lying SE of that point, should be avoided in heavy weather as the seas break over them. Formalities are completed in the commercial port of Bridgetown, north of Carlisle Bay; the recommended anchorage.

AN519 Antigua SE, 2 miles SSE of English Harbour on the SE coast of Antigua. Formalities can be completed in the nearby historical port of English Harbour.

AN52 *Canary Islands to Cape Verde Islands*

BEST TIME:	October to May
TROPICAL STORMS:	None
CHARTS:	BA: 4104 US: 120
PILOTS:	BA: 1 US: 143
CRUISING GUIDES:	<i>Atlantic Islands.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN520 Las Palmas 28°07'N, 15°24'W	AN521 Canaria S 27°25'N, 15°30'W	AN522 São Vicente 17°00'N, 25°00'W	Mindelo 16°53'N, 25°00'W	867

This route is sailed by boats using the Cape Verde Islands as an intermediate stage either in their transatlantic voyage or en route to West Africa. As one of the recommended routes from the Canaries to the Lesser Antilles passes NW of these islands, a detour is easily accomplished. Although only basic provisions are available in Mindelo, on São Vicente, the main island of the group, the Cape Verde Islands make a good starting point for the transatlantic voyage because they lie in the trade wind belt and fast passages have been made along their latitude. Most boats which break their Atlantic crossing there do

so to refill their fuel tanks. Unless one is dangerously low on fuel, or determined to visit the islands, such a stop in the Cape Verdes makes little sense as much less fuel will be needed to reach the Caribbean than will have been used up to get from the Canaries to the latitude of the Cape Verdes. Rather than burn up additional fuel to reach them, it is better to ration one's consumption earlier and sail the most fuel efficient course from the Canaries.

Those who intend to stop in one of the Cape Verde Islands should set a direct course from WP AN521, south of Gran Canaria, to WP AN522, north of São

Vicente. During the winter months, from the middle of December or early January to April, the NE trades blow strongly between the Canary and Cape Verde Islands. Fast passages are aided by the SW setting Canary Current which merges with the North Equatorial Current in the vicinity of the islands. The visibility near the islands is often poor, either because of haze or the dust-laden *harmattan* which blows here in winter. In October and November, winds between the two island groups are less constant in direction, although the NE trades gradually become established as one approaches the Cape Verde Islands. The area south of the Cape Verde Islands is subject to the SW monsoon from June to October, although the frequency of southerly winds is very low north of latitude

15°N, even at the height of the SW monsoon. The strongest and most consistent north winds between the two island groups have been recorded in summer, between July and September, when as much as 90 per cent of the winds are from the north.

There are three official ports of entry: Mindelo (16°53'N, 25°00'W), Praia (14°54'N, 23°31'W), and Sal (16°45'N, 23°00'W). The first two ports have better provisions and facilities, whereas Sal has an international airport, which is its main attraction for those needing to make a crew change or fly home in an emergency. To visit any place in the Cape Verde Islands outside of the above ports, one needs special written permission from immigration obtainable when clearing in at one of those ports.

AN53 Canary Islands to West Africa

BEST TIME:	October to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104			
	US: 120			
PILOTS:	BA: 1			
	US: 143			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
AN530 Las Palmas 28°07'N, 15°24'W	AN531 Canaria S 27°25'N, 15°30'W AN532 Blanc 20°50'N, 18°15'W		Nouadhibou 20°54'N, 17°03'W	533
AN530 Las Palmas	AN531 Canaria S AN532 Blanc AN533 Vert 14°45'N, 17°35'W		Dakar 14°42.7'N, 17°25.5'W	842
AN530 Las Palmas	AN531 Canaria S AN532 Blanc AN534 Bald 13°35'N, 16°55'W		Banjul 13°26.5'N, 16°34.5'W	929

An increasing number of boats sail to West Africa, some of them en route to Brazil, others just making a detour before crossing the Atlantic to the Caribbean. The situation for cruising boats is gradually improving in this region which has many attractions, as both officials and local people are getting used to the influx of foreign sailors.

The best time to make the passage south is in winter, when favourable winds will be found all along the coasts of Mauritania and Senegal. The NE trade

winds blow consistently as far as the latitude of Dakar, but south of latitude 13°N they become increasingly light, and below latitude 10°N may become variable. South of the latitude of Dakar, the winds are affected by the SW monsoon of summer when SW and W winds predominate. The current along the African coast, as far as Dakar, always sets to the south. Further south, a contrary current may be experienced during the SW monsoon.

Boats leaving from Las Palmas should make for

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WP AN531 south of Gran Canaria, from where a course should be set for WP AN532, 60 miles off Cap Blanc. If not intending to stop in Mauritania, it is recommended to stay well offshore to avoid not only the shallow waters and large number of fishing boats but also the risk of being stopped and possibly boarded by a Mauritanian naval vessel patrolling the disputed area of former Spanish Sahara. Those who intend to call at Nouadhibou, the main port of Mauritania, should approach the coast with great caution and attempt to make landfall NW of Cap Blanc at daybreak so as to reach port in daylight. If continuing to Senegal, St Louis, at the extreme north of that country, on the border with Mauritania, has been used as a port of entry into Senegal, but the entrance has a dangerous breaking bar and is therefore difficult to enter in a sailing yacht.

Boats bound for Dakar should sail the same route as far as WP AN532 from where the next WP AN533 is approximately 10 miles off Cap Vert, north of Dakar. The area should be approached with caution on account of the heavy traffic. Cap Vert, a traditional graveyard for ships, should also be given a wide berth. Boats entering Dakar must pass south and east of Goree Island. The recommended anchorage for yachts is in position 14°42.7'N, 17°25.5'W.

If sailing from Dakar to Banjul, the time of arrival at the entrance into the river Gambia should be planned to coincide with a rising tide. Boats not

stopping at Dakar bound for Banjul should stay well off Cap Vert and, having passed it, set a course for WP AN534 NW off Bald Cape in the approaches to Banjul, the capital and only port of entry into Gambia. As the harbour entrance is encumbered by shoals, entering the harbour at night is not recommended. The anchorage used by visiting yachts is in position 13°26.5'N, 16°34.5'W, but as there have been many reports of theft from yachts one should either take adequate safety measures or find another anchorage. Permission to take the boat up the river Gambia, which is navigable for about 200 miles, can be obtained from the harbour master in Banjul.

All rivers in this area are navigable and even keeled boats can travel far inland. A popular river with visiting yachts is the Casamance, which belongs to Senegal and lies south of the Gambian enclave. The main town on the Casamance is Ziguinchor (12°35'N, 16°16.5'W), located some 50 miles upriver. Boats must clear in first at Dakar and, at the time of writing, could not clear into Senegal at Ziguinchor. Officials occasionally check papers at Elinkine, some 30 miles downstream of Ziguinchor and a main tourist centre (12°30'N, 16°40'W). Also navigable is the river Saloum, with many cruising attractions in its lower reaches. French charts for these West African countries are reported to be better than the British or American charts.

AN54 Canary Islands to Bahamas

BEST TIME:	March to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012			
	US: 120			
PILOTS:	BA: 1, 70			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>Yachtsman's Guide to the Bahamas.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN540 Las Palmas 28°07'N, 15°24'W	AN541 20°00'N, 60°00'W	AN542 Salvador 23°54'N, 74°32'W	Cockburn Town 24°03'N, 74°31.5'W	3328

With the exception of Christopher Columbus, who sailed this route in 1492 and thereby established a permanent link between the Old and New Worlds, few modern boats attempt to sail nonstop

to the Bahamas. In 1992, on the occasion of the quincentenary of that historic voyage, this traditional route was sailed by many boats, their crews commemorating in this way the deeds of one of

the greatest navigators in history. The route can be useful for boats intending to sail to the southern USA directly from the Canaries.

Being unaware of the hurricane season in the yet to be discovered lands he was heading for, Columbus made his passage from the Canaries in September and was extremely fortunate in having good weather throughout, or the history of the world might have been very different. Armed with modern knowledge about the behaviour of West Indian hurricanes, the passage should not be attempted before the end of November. For the transatlantic section of the voyage directions are similar to those detailed in route AN51. However, depending on weather conditions, it may not be necessary to dip as far south as do the boats going to islands in the Southern Caribbean. If the trade winds extend as far north as 20°N, or even further, it should be possible to lay a fairly direct course across.

Whichever course is chosen for the Atlantic crossing itself, on approaching the islands of the Eastern Caribbean, one should attempt not to sail below WP AN541 so as to stay well clear of such islands as Anguila and Sombrero, which have claimed too many ships in the past. From there, the course should stay well offshore to pass the Turks and Caicos group at a safe distance before closing with San Salvador, which is marked by a powerful light. After landfall is made at WP AN542, 5 miles SE of Sandy Point, the SW extremity of San Salvador, the west of the island should be passed at a safe distance before approaching the main settlement at Cockburn Town. Entry formalities can be completed there or one mile further north at Riding Rock Marina, which has a difficult entrance with a maximum depth of 7 ft at high tide.

AN55 Canary Islands to Bermuda

BEST TIME:	April to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012			
	US: 120			
PILOTS:	BA: 1, 70, 71			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>Yachting Guide to Bermuda.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN550 Las Palmas 28°07'N, 15°24'W	AN551 25°00'N, 60°00'W	AN552 Bermuda E 32°22'N, 64°38'W	St George's 32°22'N, 64°40'W	2894

The number of boats sailing nonstop from the Canaries to Bermuda is relatively small, probably because the best sailing conditions on this route coincide with the start of the hurricane season in the Western Atlantic. The greatest frequency of hurricanes in Bermuda itself has been recorded from mid-August to mid-October, June and July being considered relatively safe months.

For anyone in a hurry to return to the USA, this direct route has much to recommend it and fast passages have been recorded. If the voyage is made during the safe season, from November to April, the winter trades are so far south that a detour to find them would take the track so close to the Lesser Antilles that it would be just as easy to make a stop there. As the sun changes its declination and

starts moving north, the trade wind belt does the same and, in spring or early summer, a passage to Bermuda can be done between latitudes 20° and 25°N. Constant NE and later E winds will be found along these latitudes for most of the transatlantic voyage. The temptation should be resisted to alter course for Bermuda too soon as this leads into an area of variable winds. One should therefore aim for WP AN551 so that Bermuda is approached from the SSE. For the remaining distance the winds should be from the SW, which are the prevailing winds in Bermuda during summer. Landfall should be made at WP AN552 east of St David's Head, in the approaches to the Town Cut which leads into St George's Harbour, where entry formalities are completed.

ROUTES IN THE NORTH ATLANTIC

AN56 Canary Islands to Azores

BEST TIME:	May to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104 US: 12			
PILOTS:	BA: 1, 67 US: 143			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN560 Santa Cruz 28°40.5'N, 17°45.5'W	AN561 La Palma 28°52'N, 17°45'W	AN562 Santa Maria 36°54'N, 25°09'W	Vila do Porto 36°56'N, 25°08.5'W	623
AN560 Santa Cruz	AN561 La Palma	AN563 Faial 38°30'N, 28°36'W	Horta 38°32'N, 28°37.5'W	811

The most likely winds in summer will be from the NE making this a close hauled passage, especially if one leaves from one of the more western islands such as La Palma. A contrary current of up to 1/2 knot may also be experienced. Although the Azores are considered to be outside the tropical storms area, very rarely such storms have reached the archipelago. Such occurrences are well forecast so that adequate precautions can be taken.

Taking as a departure point WP AN561 NE of La Palma, the direct course to Ponta Delgada, the

capital of the Azores, leads so close to the island of Santa Maria, that one may decide to stop first at its main port of Vila do Porto. In such a case, course should be set for WP AN562, 2 miles south of that harbour. An alternative destination is Horta, on the island of Faial. In this case, landfall can be made at WP AN563, 3 miles SE of the port of Horta.

If leaving the Canaries from one of the islands east of Tenerife, the voyage can be interrupted in Madeira from where the same directions apply as for route AN43 (page 67).

AN57 Canary Islands to Madeira

BEST TIME:	April to June, October			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104 US: 104			
PILOTS:	BA: 1 US: 143			
CRUISING GUIDES:	<i>Atlantic Islands, Madeira Cruising Guide.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN571 Graciosa 29°13'N, 13°33'W		AN572 Madeira 32°38'N, 16°54'W	Funchal 32°37.5'N, 16°54.5'W	269
AN573 Las Palmas 28°08'N, 15°24'W	AN574 Isleta 28°09'N, 15°23'W	AN575 Salvagem 30°10'N, 15°45'W	Funchal	283

AN50 ROUTES FROM THE CANARY ISLANDS

As the prevailing winds of summer are from the northern quarter, this passage is best undertaken either in the spring or autumn. Ideally, one should wait for a spell of southerly winds before leaving the Canaries. At any time, but particularly during summer, it may be easier to sail first to Lanzarote from where the winds will be at a better angle for the subsequent leg to Madeira. In such a case, the best departure point from the Canaries is the small island of Graciosa, north of Lanzarote.

The direct route from both Tenerife and Gran Canaria passes close to the Salvagem Islands,

which lie approximately halfway between the two island groups. As landing in these islands is prohibited without a permit and the area surrounding them has many dangers, it is best to pass them at a safe distance. In an emergency it is possible to seek shelter in the anchorage at Cagarras Bay (30°08.3'N, 15°52.2'W), on the SW side of Salvagem Grande, where the resident caretaker is based. From Salvagem Grande the route for Madeira must avoid a number of dangers north of the island before a direct course can be set for Funchal.

AN58 Canary Islands to Gibraltar

BEST TIME:	April to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 4104			
	US: 104			
PILOTS:	BA: 1, 67			
	US: 143			
CRUISING GUIDES:	<i>Yacht Scene</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN580 Las Palmas 28°08'N, 15°24'W	AN581 Isleta 28°09'N, 15°23'W			
	AN582 33°00'N, 11°00'W			
	AN583 Espartel 35°52'N, 6°00'W			
	AN584 Hoyo 36°04'N, 6°20'W			
	AN585 Tarifa 35°59'N, 5°36'W			
	AN586 Carnera 36°03'N, 5°25'W	AN587 Gibraltar 36°08'N, 5°22'W	Marina Bay 36°09'N, 5°21'W	709

The recommended time to make this passage is in late spring before the onset of the NE winds of summer. If persistent northerly winds are met after leaving the Canaries, it may be necessary to break the voyage in Madeira and stop at either Funchal or Porto Santo and wait for the weather to change. One may also wait for such a change at the anchorage on Salvagem Grande (see route AN57).

If weather conditions allow a relatively direct route to be sailed from Las Palmas, a course should be set for an intermediate WP AN582. From there a new course should be set to WP AN583, some 5 miles NW of Cape Espartel, in the approaches to the Strait of Gibraltar. Directions for negotiating the Strait are given in routes AN16 and AN21 (pages 44 and 49).

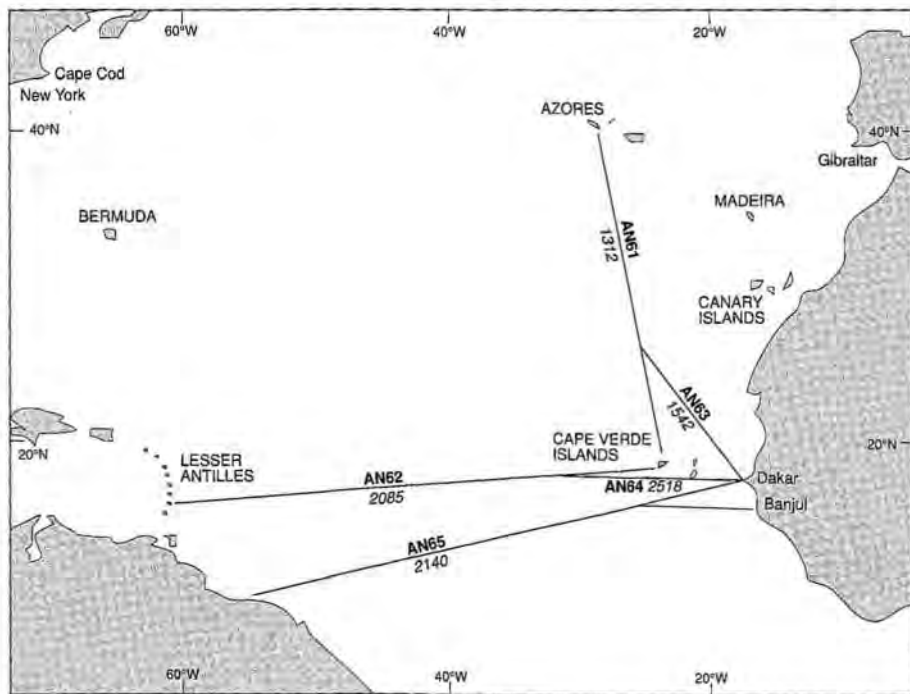
AN60 ROUTES FROM THE CAPE VERDE ISLANDS AND WEST AFRICA

AN61	<i>Cape Verde Islands to Azores</i>	81
AN62	<i>Cape Verde Islands to Lesser Antilles</i>	82
AN63	<i>West Africa to Azores</i>	82
AN64	<i>West Africa to Lesser Antilles</i>	83
AN65	<i>West Africa to Northern Brazil and Guyanas</i>	84

The former Portuguese colony of the Cape Verde Islands is a group of small islands 200 miles off the coast of West Africa which used to be a busy coaling station frequented by intercontinental steamers. They have been rediscovered as a convenient stopover for those wishing to shorten their transatlantic passage to the Caribbean or intending to make their landfall in Brazil. As the Cape Verdes lie in the NE trade wind belt, the prevailing wind is NE most of the year, being stronger from February to June, when winds of 25 knots or

more blow most of the time. As the convergence zone moves to its most northerly position in summer months there are more variable winds, with fresh southerlies in August and September, the time of the SW monsoon.

In neighbouring West Africa, the strong NE trades blowing across continental Africa between December and February can produce *harmattan* winds. These often create a dust haze and cover the boat and sails in reddish dust. Distinguished by a yellow sky and a blurred horizon, this haze



AN60 Routes from the Cape Verde Islands and West Africa

not only reduces visibility to a few hundred yards, but even when the visibility is several miles it makes it very difficult to estimate distances at sea until land or an object is seen. Therefore great care must be taken when approaching the Cape Verde Islands during these conditions.

For a taste of Africa, some of the best cruising on that continent is to be found in Senegal and Gambia with the possibility of navigating the larger rivers in this area. Although cruising in West Africa is usually incorporated into a longer voyage by those making a more southerly Atlantic crossing to Brazil, the number of cruising boats is steadily increasing. As in some other parts of the world, the first to discover these new cruising

grounds were French sailors, who were aided by the fact that some of the countries are former French colonies and French is widely spoken. The best time to visit the area is during the winter months, from December to April, when temperatures are pleasant and there is little rain. The summer months are hot, humid, and wet.

Transatlantic passages starting from either West Africa or the Cape Verdes do not present major problems as the winds are usually favourable. More difficulties are experienced by boats intending to return to Europe; they have to beat against the prevailing NE winds and must break the trip in the Azores.

AN61 Cape Verde Islands to Azores

BEST TIME:	June to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4012			
	US: 12			
PILOTS:	BA: 1, 71			
	US: 140, 143			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN610 São Vicente 16°54'N, 25°01'W			Vila do Porto 36°56'N, 25°09'W	1202
			Ponta Delgada 37°44'N, 25°40'W	1251
			Horta 38°32'N, 28°37.5'W	1312
			Lajes 39°23'N, 31°10'W	1387

Northerly winds blow on average 80 per cent of the time on the route between these island groups. Therefore the optimum time for this passage is late spring or early summer when the proportion of NE winds is higher than at other times and, depending on the type of boat, one may be able to lay the Azores on one tack. An additional bonus may be provided by a depression intersecting one's track in higher latitudes, and although the resulting SW winds may cause uncomfortable conditions at least they will be blowing from a favourable direction. SW winds are quite rare in the latitude of the Cape Verdes, although they do occur during summer so it may be worth waiting for a spell of SW winds before

leaving the Cape Verdes. Winds in the latter part of the passage are greatly influenced by the position of the Azores high. Being able to obtain up to date weather information can be a great bonus as it helps one choose the more favourable tack.

There are several destinations in the Azores, such as Ponta Delgada, the capital of the archipelago. The route passes so closely to the island of Santa Maria, that one may decide to stop first at its main port of Vila do Porto. Because of the NE winds, which will have been encountered en route, a more likely landfall will be further west, such as at Horta on the island of Faial, or even Lajes on the westernmost island of Flores.

ROUTES IN THE NORTH ATLANTIC

AN62 Cape Verde Islands to Lesser Antilles

BEST TIME:	December to April
TROPICAL STORMS:	June to November
CHARTS:	BA: 4012 US: 12
PILOTS:	BA: 1, 71 US: 140, 143, 147
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Yachtsman's Guide to the Windward Islands.</i>

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
AN620 São Vicente 16°53'N, 25°00'W		AN621 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	2085
		AN622 Martinique 14°22'N, 60°51'W	Fort de France 14°36'N, 61°05'W	2094
		AN623 Barbados 13°02'N, 59°23'W	Bridgetown 13°06'N, 59°38'W	2019
		AN624 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	2110

Columbus was first to see the attraction of these islands as a better springboard for a trade wind passage across the Atlantic than the Canaries and he set off on his third voyage to the Caribbean from here. The advantage of this route is not only that the actual transatlantic passage is shorter but also that the Cape Verdes are situated for most of the year in the heart of the NE trades. Fast passages

are usually logged by boats starting off from the Cape Verdes provided their course does not dip too far south into an area where the trade winds become less constant. A great circle course is usually the best route to take across. More detailed directions for the transatlantic passage are given in route AN51 (page 72).

AN63 West Africa to Azores

BEST TIME:	April to August
TROPICAL STORMS:	None
CHARTS:	BA: 4012 US: 12 BA: 1, 67 US: 140, 143
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
AN631 Vert 14°45'N, 17°35'W			Vila do Porto 36°56'N, 25°09'W	1391
			Ponta Delgada 37°44'N, 25°40'W	1444
			Horta 38°32'N, 28°37.5'W	1542

AN60 ROUTES FROM THE CAPE VERDE ISLANDS AND WEST AFRICA

As explained in route AN61, NE winds predominate in the area south of the Azores and passages should therefore be timed for a period when the proportion of such winds is lowest. Starting off from one of the West African ports, as opposed to the Cape Verdes, has the obvious advantage of a better angle in relation to the prevailing winds, so unless one has a very good reason to stop in the Cape Verdes, the valuable easting should not be lost.

If leaving from Dakar, the recommended route passes east of the Cape Verdes, and should the need arise, the island of Sal (16°45'N, 23°00'W) is in the most convenient position for a landfall. It can be assumed that the trade winds will be lost around 25°N from where it should be easier to make the necessary northing. North of latitude 30°N the winds and weather are very much dependent on the position of the Azores high. If this lies further south than its usual seasonal position, light

winds can be expected in the vicinity of the Azores. There are several destinations in the Azores, such as Ponta Delgada, the capital of the archipelago. As the route passes closely to the island of Santa Maria, a first stop could be made at its main port of Vila do Porto. Because of the NE winds earlier in the passage, a more likely landfall will be further west, such as at Horta on the island of Faial.

The timing of this passage may also depend on the destination after the Azores. It is not advisable to attempt this passage before April to give the strong NE winds of winter a chance to diminish in strength. South of latitude 15°N they are replaced in summer by the SW monsoon, which blows between Senegal and the Cape Verde Islands from June to October. The start of the SW monsoon is therefore the best time to leave West Africa for the Azores as it would ensure good winds at least for the early part of the voyage.

AN64 West Africa to Lesser Antilles

BEST TIME:	December to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012			
	US: 12			
PILOTS:	BA: 1, 71			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Yachtsman's Guide to the Windward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN641 Vert 14°45'N, 17°35'W		AN643 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	2518
		AN644 Martinique 14°22'N, 60°51'W	Fort de France 14°36'N, 61°05'W	2528
		AN645 Barbados 13°02'N, 59°23'W	Bridgetown 13°06'N, 59°38'W	2449
		AN646 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	2551
AN642 Banjul 13°35'N, 16°55'W		AN643 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	2564
		AN644 Martinique 14°22'N, 60°51'W	Fort de France 14°36'N, 61°05'W	2574
		AN645 Barbados 13°02'N, 59°23'W	Bridgetown 13°06'N, 59°38'W	2492
		AN646 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	2601

Whether leaving from a port in Senegal or the Gambia, steady favourable winds will be encountered on this route throughout the winter months. If winds are westerly on leaving continental Africa,

which is not unusual during the summer months, it is recommended to stay on the starboard tack. As one moves offshore, the winds will veer, allowing one to pass the Cape Verdes without tacking.

ROUTES IN THE NORTH ATLANTIC

From the Cape Verdes onwards this route is similar to route AN62. As the Cape Verdes are so close to the direct route it may be convenient to stop there before proceeding west. If leaving from mainland Africa direct, especially from more southern ports, attention must be paid to the currents both in the vicinity of the coast and during the transat-

lantic passage. Sailing too close to the southern limit of the NE trades should be avoided as there is a danger of being pushed by a branch of the North Equatorial Current towards the doldrums and an area of less steady winds. More details concerning the Atlantic crossing are given in route AN51 (page 72).

AN65 West Africa to Northern Brazil and Guyanas

BEST TIME:	November to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 4012			
	US: 106, 107			
PILOTS:	BA: 1, 7A			
	US: 124, 143			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN651 Vert 14°45'N, 17°35'W	AN653 10°00'N, 40°00'W		Degrad des Cannes 4°51'N, 52°16'W	2140
			Paramaribo 5°50'N, 55°10'W	2284
			Georgetown 6°49'N, 58°11'W	2447
AN652 Banjul 13°35'N, 16°55'W	AN653		Degrad des Cannes	2169
			Paramaribo	2313
			Georgetown	2475

This passage is best undertaken during winter when the NE trade winds reach further south. If leaving from a port south of the river Gambia, a NW course should be sailed first to avoid an area of light and variable winds close to the equator. If leaving from Senegal, the recommended route passes south of the Cape Verde Islands. In both cases, a course should be set for WP AN653. This intermediate waypoint is suggested to avoid the effects of a contrary current which has been observed south of 10°N. If the port of destination lies south of this latitude, the course can be set for it once the recommended waypoint has been passed. The North Equatorial Current will give a boost along most of this route. A strong current sets northwards along the coast of South America and this must be taken into account when making landfall. Dangerous shallow areas extend off the coast, especially near river mouths. If entering any of these rivers, attention must be paid to

the strong tides.

This route is often sailed by boats heading for Belem and the Amazon River. Although such a destination would make this into a transequatorial route, in order to ensure better conditions during the crossing the latter should be done north of the equator. Knowing the position of the ITCZ, shown on satellite pictures obtained by weatherfax, is essential in such a case so as to minimise the time spent under its influence. Very slow passages with violent squalls and a contrary current have been recorded during summer. The main reason for crossing at such a time is to arrive in Amazonia at the start of the dry season (July).

The three former Guyanas, French (Cayenne), Dutch (Suriname), and British Guyana attract a small number of cruising boats. Entry formalities in French Guyana are completed at Degrad des Cannes. The port of entry for Suriname is Paramaribo, approximately 13 miles up the

Suriname River, where boats now clear in at the new harbour, Nieu Halfen. The least visited of the

three is Guyana itself, where the only official port of entry is its capital Georgetown.

AN70 ROUTES FROM THE LESSER ANTILLES

AN71 <i>Lesser Antilles to Venezuela</i>	87
AN72 <i>Lesser Antilles to ABC Islands</i>	87
AN73 <i>Lesser Antilles to Colombia</i>	88
AN74 <i>Lesser Antilles to Panama</i>	89
AN75 <i>Lesser Antilles to Greater Antilles</i>	90
AN76 <i>Lesser Antilles to Bahamas</i>	91
AN77 <i>Lesser Antilles to North America</i>	92
AN78 <i>Lesser Antilles to Bermuda</i>	94
AN79 <i>Lesser Antilles to Azores</i>	95

The Windward and Leeward Islands continue to be the most popular cruising destination in the North Atlantic and, although commonly referred to as the Caribbean, their correct name is the Lesser Antilles. The majority of sailors, whether coming from Europe or North America, usually spend a season cruising the islands before embarking on the return voyage home. The greatest exodus takes place between the middle of April and the end of May, when most boats leave either for Bermuda or directly for the Azores. The route to Bermuda is used both by boats sailing to the east coast of North America and by Europeans returning home. The direct route to the Azores, without calling at Bermuda, has been gaining in popularity in recent years as it shortens the distance by several hundred miles, even if favourable winds are the exception rather than the rule on this direct route which crosses both the Horse Latitudes and the infamous Sargasso Sea.

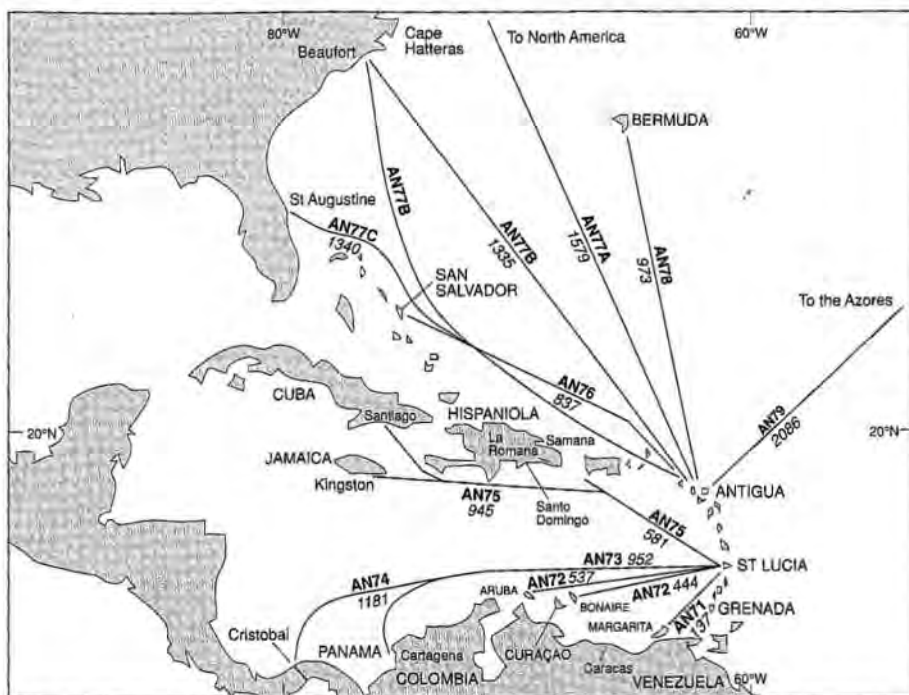
Much more wind is experienced by those heading across the Caribbean Sea proper, most of whom are bound for the Panama Canal. If this passage is made in winter, when the trade winds are at their strongest, large seas can be expected on the way to Panama. The situation improves with the approach of summer and passages in April and May are more comfortable. Rather than sail directly to Panama, many boats now cross the Caribbean Sea in shorter stages by calling at the offshore islands of Venezuela, the Dutch islands of Aruba, Bonaire and Curaçao, and also Colombia. In Panama itself, the islands of San Blas

continue to be one of the most fascinating destinations in the area. The main advantage of cruising along the northern coast of South America in easy stages is that the area is rarely affected by tropical storms. Occasionally, however, a hurricane does reach Venezuela or the SW part of the Caribbean, so if possible even this area should be avoided during summer, from the end of July until the end of October.

Although most sailors bound for the US east coast take their leave from the Eastern Caribbean in one of the northern islands, such as Antigua, St Martin, or one of the Virgins, a less frequented route to the USA is one which crosses the Caribbean Sea. Such a southern route has certain attractions for anyone bound for Florida or one of the southern states. Leaving from one of the southern islands in the Eastern Caribbean, such as St Lucia, the route stays south of Puerto Rico as far as the Mona Passage from where it continues north of Hispaniola and on to the Bahamas. The other, probably more attractive, alternative is to take the offshore route south of all the Greater Antilles, with possible stops in Jamaica, Grand Cayman, or Cuba. Such a route is described in detail in AN83, and although it originates in the Virgins, conditions would be similar if one left from one of the islands to the south.

One of the main attractions of the Lesser Antilles is their weather. During winter months the NE trades blow with regularity and both day and night temperatures are pleasantly warm. The average temperature rarely varies from 26–28°C

ROUTES IN THE NORTH ATLANTIC



AN70 Routes from the Lesser Antilles

throughout the year. In late summer and autumn, when the trades ease up, the threat of hurricanes spoils this perfection. The number of boats that carry on cruising during this period is relatively small because of the fear of being caught out by a hurricane. Although not recommended, it is possible to cruise, provided some basic precautions are observed. From the middle of December until the end of April, the trade winds blow between NE and ENE, usually at a constant 15–20 knots. Occasionally these increase to 25–30 knots for a few days and can have stronger gusts, especially in late January and early February. As summer approaches the wind tends to veer SE and even S, gradually returning to the E and NE towards the end of the year. In summer months the winds are lighter, from 12–15 knots in June through to September. This is the rainy season, particularly from August into November.

Occasionally the weather is interrupted by an Easterly Wave, a low pressure trough, which moves westward and can develop into a hurricane. Whenever the wind shifts to the north during the summer months, a stiff blow can be expected. West Indian hurricanes usually form about 800 miles to the east of Barbados and track north and west. Hurricanes are more frequent in the more northern Leeward Islands than in the Windward Islands lying further south, and rarely strike the most southerly islands such as Grenada. The likelihood of experiencing such a storm is less the further south and east one is at the height of the hurricane season. A common path is for hurricanes to pass about the latitude of Guadeloupe or further north and then move along the Leeward Islands before turning north. The hurricane season is from June to November, with the greatest number occurring in September. Very rarely a hurricane strikes in May or December.

AN71 Lesser Antilles to Venezuela

BEST TIME:	December to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 400			
PILOTS:	BA: 7A, 71 US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to Trinidad and Tobago, Venezuela and Bonaire, Street's Cruising Guide to the Eastern Caribbean - Venezuela.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN710 Grenada 12°02.5'N, 61°46'W	AN711 Testigos 11°30'N, 63°00'W	AN712 Margarita 11°00'N, 63°35'W	Pampatar 11°00'N, 63°47'W	137

This relatively short passage benefits from favourable winds throughout the year. Sometimes in winter, between January and March, when the trade winds blow strongly, conditions can be rough. Better conditions are experienced at the change of seasons when winds continue to be favourable, but are usually lighter than in winter. On all westbound passages allowance should be made for the strong Equatorial Current which can set westward at rates of up to 2 knots.

Boats leaving from Grenada normally sail directly to Pampatar, on the SE coast of Margarita Island, the nearest official port of entry. The route passes dangerously close to Los Testigos, a group of low islands surrounded by shallows and reefs, which should be given a wide berth unless planning to stop there. More dangers will be passed on the way to Margarita, such as the low island of La Sola. So this passage, although short, should be treated with due caution.

AN72 Lesser Antilles to ABC Islands

BEST TIME:	December to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 400			
PILOTS:	BA: 7A, 71 US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to Trinidad and Tobago, Venezuela and Bonaire.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN721 Grenada 12°02.5'N, 61°46'W	AN722 Roques 12°10'N, 66°40'W		Kralendijk 12°09'N, 68°17'W Willemstad 12°07'N, 68°56'W Oranjestad 12°31'N, 70°00'W	382 421 484

The former Dutch colonies off the coast of Venezuela are easily reached from any of the Lesser Antilles as both wind and current are in one's favour virtually throughout the year. If coming

from Grenada, from WP AN721, outside St George, a course should be set for WP AN722 to pass at a safe distance north of Los Roques islands off Venezuela.

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Approaching Bonaire from the north, Bonaire can be passed on either side. Although sailing down the west side will save a few miles, the strong contrary current will cancel any advantage. Boats coming from the east should stay south of the island and go straight to Kralendijk to complete formalities. The customs dock is the northernmost dock in the commercial harbour. It is also possible to clear in at Bonaire Marina. Bonaire has a Venezuelan Consulate where visas for that coun-

try can be obtained.

Formalities in Curaçao can be completed in the capital Willemstad. Contact the Port Authority on arrival on VHF channel 12 or 14 for docking instructions. Yachts may also clear at the marina in Spanish Water (12°09'N, 68°17'W).

Aruba Port Control should be contacted on VHF channel 16 when entering for berthing and clearance instructions.

AN73 Lesser Antilles to Colombia

BEST TIME:	December to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402			
	US: 400			
PILOTS:	BA: 7A, 71			
	US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN730 St Lucia W 14°04'N, 61°00'W	AN732 Galinas 13°55'N, 71°38'W AN733 12°23'N, 73°12'W			
	AN734 11°10'N, 75°25'W	AN735 off Cartagena 10°25'N, 75°38'W	Cartagena 10°25'N, 75°32'W	952
AN731 Antigua S 16°58'N, 61°47'W	AN732 Galinas AN733 AN734	AN735 off Cartagena	Cartagena	906

A successful anti-drug campaign in the early 1990s has made it possible once again to include Colombia in one's cruising plans, and a large number of visiting boats are stopping in Colombia, especially in the attractive city of Cartagena. Directions for sailing to Colombia are similar to routes AN71 and AN74. From WP AN732, 28 miles north of Punta Galinas on Guajira Peninsula, the recommended route leads to WPs AN733 and AN734. Both points are just outside the 1000 fathom line where there are relatively less rough seas, although both strong winds and high seas are a rule

on all Caribbean routes, especially during the winter months. From AN734 the course can be altered to WP AN735 in the approaches to the port of Cartagena. The area should be approached with caution because of the dangers in the approaches to Cartagena. The entrance through Boca Grande should not be attempted as it is badly silted. The dredged entrance is now Boca Chica, identified by a landfall buoy, close to the end of Isla de Tierra Bomba. An 8 mile long channel leads northward through the shallow Bahía de Cartagena to the commercial port and two marinas.

AN74 Lesser Antilles to Panama

BEST TIME:	April to May, November to December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402			
	US: 400			
PILOTS:	BA: 7A, 71			
	US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN740 St Lucia W 14°04'N, 81°00'W	AN742 Gallinas 13°55'N, 71°38'W			
	AN743 Manzanillo 9°47'N, 79°32'W	AN744 off Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	1181
AN741 Antigua S 16°58'N, 61°45'W	AN742 Gallinas AN743 Manzanillo	AN744 off Panama	Cristobal	1162

This can be a very rough passage, confirmed by the fact that many experienced sailors describe their passage across the Caribbean Sea perhaps as the roughest part of their voyage around the world. This is usually the case at the height of the trade wind season, when the constant easterly winds pile up the water in the western part of the Caribbean making sea conditions hazardous. Many boats have been knocked down or pooped by the steep following seas, while others have been lost on the coast of Colombia after having been set off course by the strong current.

Although direct passages to Panama cross an area which is rarely affected by hurricanes, this passage should not be done between July and October when the risk of tropical storms is highest. The best times are either in November-December, when the trades are not yet blowing at full strength, or in April-May, when the strength of the winter trades starts to diminish. The months of January to March, although free of hurricanes, are also the period of the strongest trades, when conditions in the western part of the Caribbean can become uncomfortable, or occasionally even dangerous, for small boats. Best conditions can therefore be expected at either the beginning or the end of the winter season.

Boats sailing to Panama nonstop should keep at a safe distance from the Colombian coast to avoid the rougher seas associated with those shallow waters. Whether stopping in Aruba, as many boats

do, or sailing nonstop to Panama, WP AN742, 28 miles north of Punta Galinas on Guajira Peninsula allows the course to be set just outside the 1000 fathom line where relatively less rough seas can be expected. From there, a direct course leads to WP AN743, about 10 miles N of Punta Manzanillo and 30 miles from the Panama Canal entrance. The latter is reached by altering course for WP AN744 which is the landfall buoy, approximately 3 miles N of the entrance into the port of Cristobal. Traffic Control should be contacted on VHF Channel 12, although small boats may enter if they proceed carefully. Traffic lights control the entrance through the breakwaters and small boats are advised to keep as close as possible to the sides. See page 489 for detailed instructions concerning Panama entry and transit procedure.

When planning this passage across the Caribbean Sea it is well worth considering a stop in either Venezuela or the offlying ABC islands, most of which are situated outside the hurricane belt. The advantage of such a stop is that the voyage towards Panama can be continued at any time of the year, and with sufficient care even during the hurricane season, as the route from Aruba to Panama lies to the south of the area affected by tropical storms. Another suggested stop is in the San Blas Islands, which belong to Panama. The port of entry is Porvenir (9°34'N, 78°57'W). As described in AN73, the voyage can also be interrupted at Cartagena, in Colombia.

AN75 Lesser Antilles to Greater Antilles

BEST TIME:	December to May			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 400			
PILOTS:	BA: 70, 71 US: 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Cruising Guide to Cuba.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN75A				
AN750 St Lucia W 14°04'N, 61°00'W	AN751 Rojo 17°45'N, 67°12'W		Samana 19°12'N, 69°26'W	581
	AN752 Engano 18°38'N, 67°51'W			
Route AN75B				
AN750 St Lucia W	AN753 Saona 18°00'N, 68°45'W		La Romana 18°25'N, 68°57'W	533
			Santo Domingo 18°28'N, 69°53'W	586
Route AN75C				
AN750 St Lucia W	AN754 Alta Vela 17°20'N, 71°40'W		Kingston 17°58'N, 76°48'W	945
	AN755 Plumb 17°50'N, 76°40'W		Port Antonio 18°11'N, 76°27'W	926
	AN756 Northeast 18°15'N, 76°15'W		Ocho Rios 18°25'N, 77°07'W	965
Route AN75D				
AN750 St Lucia W	AN754 Alta Vela 18°10'N, 74°40'W		Santiago de Cuba 19°59'N, 75°53'W	954

Not such a popular cruising destination as the Lesser Antilles, the large islands of Cuba, Hispaniola, Puerto Rico, and Jamaica are mainly visited by yachts en route to other places. From islands south of Antigua, direct offshore routes lead across the Caribbean Sea to the south coasts of all the Greater Antilles. Ports on the north coasts of all these islands can be reached in easy stages if setting off from the Virgin Islands. The north coast of Hispaniola, islands in the Turks and Caicos, as well as some of the Bahamas, are best reached through the Mona Passage.

While experiencing the typical Caribbean weather pattern of winters dominated by the NE trades, punctuated by northers, and summers

threatened by hurricanes, these large islands affect local weather conditions considerably due to their height and position. Normally the winds along the coasts moderate at night as cooled air flows off the hills and out to sea. This land breeze can be quite strong at night off all the islands, so as to counteract the trade winds completely and give calm conditions. In winter the prevailing NE trades can become more easterly along northern coasts. During this period the islands are affected by northers, which bring strong N or more often NW winds and cold temperatures to the north and west coasts of the islands. These winds come without much warning and often out of a clear sky, although some indication may be the wind veer-

ing gradually to S and SW. In summer the trade winds have a more southerly component and winds tend to be much lighter, the sea and land breezes being prominent. Thundery squalls are common over the whole area, especially in the late afternoon close to land. Some of the most violent squalls in the Caribbean, short but sharp with lightning and heavy rain, occur off the south coast of Cuba. Because the high islands block the passage of N winds, line squalls are more associated with the northern coasts of Hispaniola and Cuba. Jamaica is a little more sheltered than the other islands and has less seasonal change, the winds being generally lighter and more variable. The Greater Antilles are in the middle of the hurricane belt and hurricanes accelerating through the Caribbean frequently hit the shores of these islands on their curved path northward. Their eastern shores are more frequently affected than the western shores.

When coming from any of the islands in the Eastern Caribbean, set course for WP AN751, 10 miles south of Cabo Rojo, the SW extremity of Puerto Rico. To pass through the Mona Passage (Route AN75A), alter course for WP AN752 so as to stay clear of the shallows, and rough seas associated with them, east of Cape Engano on

Hispaniola. Boats intending to stop on the west coast of Puerto Rico are warned that the official port of entry is Mayaguez (18°12'N, 67°07'W) and not Boqueron. All boats, including those flying the US flag, must stop at the former to clear in. A convenient port of entry into the Dominican Republic is Samana, on the north coast of Hispaniola.

Favourable conditions are experienced on westbound routes, which stay south of the islands, at almost any time of the year, especially if bound for ports on the south coast of Hispaniola. Boats sailing this route (AN75B) should set a course for WP AN753, off Saona island, at the SE point of Hispaniola, and then alter course for either La Romana or Santo Domingo.

Boats bound for Jamaica and beyond (AN75C) should make for WP AN754, off the small island of Alta Vela, south of Hispaniola, where those intending to call at the Jamaican capital Kingston should alter course for WP AN755. Boats bound for ports on the north coast of Jamaica should steer for WP AN756, off Northeast Point, and then make for their port of destination. Finally, boats bound for Cuba (AN75D) should alter course from AN754 for WP AN757, off Cape Tiburon, from where it is a clear run to Santiago de Cuba, the nearest Cuban port of entry to this route.

AN76 Lesser Antilles to Bahamas

BEST TIME:	December to May				
TROPICAL STORMS:	June to November				
CHARTS:	BA: 4400 US: 400				
PILOTS:	BA: 70, 71 US: 147				
CRUISING GUIDES:	<i>Yachtsman's Guide to the Bahamas.</i>				
WAYPOINTS:					
Departure	Intermediate	Landfall	Destination	Distance (M)	
AN761 Antigua W 17°00'N, 61°56'W	AN762 17°45'N, 63°00'W				
	AN763 18°55'N, 64°08'W				
	AN764 Calcos 22°20'N, 72°10'W				
	AN765 Samana 23°10'N, 73°20'W	AN766 Salvador 23°54'N, 74°32'W	Cockburn Town 24°03'N, 74°31.5'W	837	

In winter, this route benefits from both favourable winds and current. The offshore passage can be made at any time outside of the hurricane season. Between December and April, at the

height of the winter trades, fair, if strong winds, can be expected as well as the favourable Antilles Current. Light winds and occasional calms can be expected at the change of seasons, especially in

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May. The route can be affected by depressions passing to the north with resulting NW winds. As both the Virgin Islands and Puerto Rico are situated on or very close to the direct route from the Eastern Caribbean to the Bahamas, most boats stop there before continuing their voyage. If stopping in the Virgin Islands, directions for the onward passage are given in route AN85 (page 101).

For boats leaving Antigua on a nonstop passage to the Bahamas, from WP AN761, off the SW of Antigua the initial course passes NE of Nevis, St Kitts, and St Eustatius to WP AN762, halfway between St Barts and Saba. From there a new course should be set for WP AN763 to stay clear of Anegada and the many dangers surrounding it. The course then stays well offshore to pass outside all dangers. The Southern Bahamas can be reached via several deep water passes, all of which are subject to strong currents as indeed is the entire area of the Bahamas. The route follows a NW direction to WP AN764 off Caicos Passage. The nearest island to clear into the Bahamas is Mayaguana, whose eastern point should be given

a wide berth to avoid the reefs surrounding it. Although Abrams Bay, the main settlement on the south coast of the island, is not an official port of entry, boats are allowed to stop there provided they complete formalities in the first official port of entry. The nearest is Cockburn Town on the island of San Salvador. If continuing on the offshore route, course for the latter should not be set until one is well clear of Samana Cay, a low unlit island lying between Mayaguana and San Salvador. From WP AN764 the course should be altered for WP AN765 east of Samana then for WP AN766.

After landfall is made at WP AN766, 5 miles SE of Sandy Point, the SW extremity of San Salvador, the west of the island should be passed at a safe distance before approaching the main settlement at Cockburn Town. Entry formalities can be completed there or one mile further north at Riding Rock Marina, which has a difficult entrance with a maximum depth of 7 ft at high tide. The GPS latitude of the entrance channel into the small marina has been reported as 24°03.4'N. The marina management will answer calls on VHF channel 6.

AN77 Lesser Antilles to North America

BEST TIME:	Late April to June
TROPICAL STORMS:	June to November
CHARTS:	BA: 4403 US: 108
PILOTS:	BA: 59, 68, 69, 70, 71 US: 140, 145, 147
CRUISING GUIDES:	<i>Coastal Cruising Guide to the Atlantic Coast.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN77A				
AN770 Antigua S	AN771 Antigua W			
16°58'N, 61°45'W	17°00'N, 61°56'W			
	AN772			
	17°08'N, 62°00'W			
	AN773			
	18°25'N, 62°20'W			
	AN774 David		Chesapeake	1553
	32°21'N, 64°38'W		36°45'N, 75°45'W	
		AN 775 Brenton	Newport	1579
		41°24'N, 71°16'W	41°29'N, 71°20'W	
			Hallifax	1683
			44°38'N, 63°34'W	

AN70 ROUTES FROM THE LESSER ANTILLES

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN77B				
AN770 Antigua S	AN773		Beaufort 34°43'N, 76°40'W	1395
Route AN77C				
AN770 Antigua S	AN773		St Augustine 29°55'N, 81°16'W	1340
	AN774 Abaco 26°50'N, 76°30'W			
	AN775 Bahama 27°30'N, 78°00'W			

The recommended time for this passage is at the end of the winter sailing season in the Caribbean. At such times the winds usually have a southern component. If a direct course is sailed to ports south of Cape Hatteras, favourable winds can be expected as far as the northern limit of the trade winds. Occasionally southerly winds last right through the zone of calms that extends between latitudes 25°N and 30°N. North of this zone the winds are variable, with a predominance of S and SW winds. The danger of a blustery winter norther is minimal after the middle of April. The temptation of a ride in the Gulf Stream should be resisted if this passage is made early in the season to avoid being caught by a late norther. This route is not recommended after the end of June because of the increased likelihood of hurricanes. Summer passages should be avoided as the tracks of past hurricanes almost coincide with the direct northbound route.

For destinations north of Cape Hatteras as far as Nova Scotia (AN77A), a stopover in Bermuda has certain attractions. In fact very few boats sail nonstop from the Eastern Caribbean to ports east of New York without stopping in Bermuda. Details for such a route are given in AN78 and AN121 (pages 94 and 135). Boats leaving from English Harbour can leave Antigua either to port or starboard. The second alternative is more comfortable for the start of the voyage and so a course should be set to sail west parallel to Antigua's south coast to WP AN771 before altering course for WP AN772. The course can then be set for WP AN773 to pass west of Barbuda and stay well clear of Anguilla and associated dangers. From there a direct course leads to WP AN774, one mile east of St David's Head in the approaches to the Town Cut which leads into St George's Harbour. This is

Bermuda's only port of entry. The entrance is difficult to negotiate in the dark and those unfamiliar with it should avoid arriving or at least using it at night.

For boats bound for ports south of Cape Hatteras a detour via Bermuda makes little sense. There are two routes which can be sailed to reach any of those ports, either by a direct offshore route (AN77B) or an indirect route passing close to the Bahamas (AN77C). Although the direct route (AN77B) appears to be shorter, it is not necessarily the faster as it cuts diagonally across the zone of calms that will be found north of latitude 25°. Such a direct offshore route should only be attempted if favourable weather conditions are likely to be encountered. In this case, from WP AN773 a course may be set for the port of destination. The suggested alternative (AN77C) is to follow a NW course to windward of both Turks and Caicos and the Bahamas. From Great Abaco the route turns north and picks up the Gulf Stream. Both winds and current are favourable along most of this route. Boats bound for ports in Northern Florida should continue to WP 775 before altering course for their destination.

A direct passage along any of the above routes should not be attempted during the winter months when a slower cruise through the Bahamas to Florida is to be preferred and the US can be reached in a more leisurely way. For boats bound for South Florida there are three alternatives. Between April and June the most direct route passes outside Turks and Caicos as well as the Southern Bahamas as far as Great Abaco. From there the route goes through the NE and NW Providence Channels and crosses the Gulf Stream to Florida. The other two alternatives can be used at any time between November and June,

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although they cannot be regarded as offshore passages because both consist of island hopping, either right through the Turks and Caicos as well as the Bahamas, or along the northern shores of Puerto

Rico, Hispaniola, and Cuba. The high risk of hurricanes must be taken into account if any of these inshore routes is sailed in summer.

AN78 Lesser Antilles to Bermuda

BEST TIME:	Mid-April to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4400			
	US: 108			
PILOTS:	BA: 70, 71			
	US: 140, 147			
CRUISING GUIDES:	<i>Yachting Guide to Bermuda.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN780 Antigua S 16°58'N, 61°45'W	AN781 Antigua West 17°00'N, 61°56'W AN782 17°08'N, 62°00'W AN783 18°25'N, 62°20'W	AN784 David 32°21'N, 64°38'W	St George's 32°22'N, 64°40'W	973

The favoured point of departure for this route is Antigua's English Harbour, where boats take their leave from the Lesser Antilles and head north for Bermuda as part of a return trip either to Europe or North America. This normally happens at the end of the winter season, when most boats that have been cruising the Eastern Caribbean congregate in or around English Harbour for the annual Antigua Sailing Week.

A departure from Antigua to Bermuda puts a boat more to windward than a departure from the Virgin Islands or Puerto Rico, as described in route AN88 (page 105). The better slant puts one onto a close reach as far as the northern limit of the trade winds, which at the optimum time for this passage can be carried to latitude 26°N or even 28°N. The winds from late April to the middle of June are mostly E to SE for the first half of this passage, becoming lighter farther north. Light southerly winds are sometimes carried right through the Horse Latitudes, but calms are the rule not the exception in the region of the Sargasso Sea. If constant SE winds are carried through, the weather remains clear, otherwise it is cloudy and overcast.

Boats leaving from English Harbour can leave Antigua either to port or starboard. The second

alternative is more comfortable for the start of the voyage and so a course should be set to sail west parallel to Antigua's south coast to WP AN781 before altering course for WP AN782. The course can then be set for WP AN783 to pass west of Barbuda and stay well clear of Anguilla and associated dangers. From there, a direct course leads to WP AN784, one mile east of St David's Head in the approaches to the Town Cut which leads into St George's Harbour. This is Bermuda's only port of entry. The entrance is difficult to negotiate in the dark and those unfamiliar with it should avoid arriving or at least using it at night.

For those who are determined to make good time to Bermuda there is no alternative but to motor through the calms that may be encountered and this is definitely advisable later in the season because of the risk of hurricanes. This route is not recommended after the end of June because of the increased likelihood of hurricanes. Passages along this route are definitely discouraged after July as the tracks of past hurricanes almost coincide with the direct course to Bermuda, passing north of the Virgin Islands and running between the US east coast and Bermuda. Tropical depressions become more frequent after the beginning

of July and even if they do not generate strong winds, the weather in their vicinity is very unsettled with heavy rain. If such a depression forms close to the northern extremity of the Lesser Antilles, contrary winds can be expected on the way to Bermuda.

This passage can also be done towards the end of the hurricane season, when the frequency of S

and SW winds on the way to Bermuda is higher, but so also is the risk of a late hurricane. Fortunately the best time for this route is also the most convenient as it coincides with the end of the safe cruising season in the Caribbean, Antigua Week, and optimum weather for a subsequent passage to either Europe or North America.

AN79 Lesser Antilles to Azores

BEST TIME:	May to June				
TROPICAL STORMS:	June to November				
CHARTS:	BA: 4011				
	US: 120				
PILOTS:	BA: 67, 71				
	US: 140, 143, 147				
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
AN790 Antigua S 16°58'N, 61°45'W	AN791 Antigua E 17°00'N, 61°40'W	AN792 Fajal 38°30'N, 28°47'W	Horta 38°32'N, 28°37.5'W	2167	
		AN793 Flores 39°20'N, 31°18'W	Lajes 39°23'N, 31°10'W	2086	

For many years yacht captains were not prepared to challenge the accepted wisdom that a return voyage from the Caribbean to Europe should only be attempted along the classic route that passes through Bermuda and the Azores. What started as a devil-may-care route used mostly by delivery crews and skippers of charter boats in a hurry to return to the Mediterranean at the end of the season in the Caribbean, is now attracting cruising boats as well. As the route via Bermuda is at least 500 miles longer than the great circle route from Antigua to Horta, and one cannot even be sure of fair winds for half that voyage via Bermuda, many prefer to stay in warmer weather and hope for the best.

On leaving Antigua, or any other of the Lesser Antilles, a NE course is set, which should be possible to achieve because the trade winds are mostly south of east when this passage is usually made, in May or June. The chances of SE winds increase as one moves north until the belt of calms and light winds is reached which separates the trade winds from the westerlies of higher latitudes. This is the time when a powerful engine and a good reserve of fuel make up for the lack of wind and

this is the tactic preferred by most of those who take this route. With a bit of luck, winds on the other side of the Horse Latitudes may turn out to be favourable. If this occurs, some people are tempted to bypass the Azores altogether and carry on nonstop to Gibraltar, if bound for the Mediterranean.

The optimum time for this passage is between May and July, although most boats sail this route in May. April is a little too early since the frequency of gales in the Atlantic is still high. After July the frequency of hurricanes increases, making all passages to or from the Caribbean a hazardous affair. If a summer passage is considered, the Caribbean should only be left with a reasonable long term forecast. If no tropical depression is seen to be forming, there is a fairly good chance of not being overtaken by the resulting storm. Taking as a departure point WP AN791, five miles east of Antigua's English Harbour, the great circle route is joined immediately unless one has good reason to believe that a different course may have a better chance of favourable winds. If NE winds make it impossible to sail the great circle course, initially one should favour the tack which makes most northing.

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The most popular landfall in the Azores continues to be Horta, on the island of Faial, where there is a good marina and entry formalities can be completed. To reach Horta, make landfall at WP AN792, 3 miles SW of Faial and then sail along the south coast of the island before turning north at the conspicuous Mount Guia.

The recently improved port of Lajes, on the westernmost island of Flores, offers the possibility of clearing into the Azores at a point from where it is easier to visit most other islands. Having made landfall at WP AN793, 3 miles SW of Flores, the island's south coast is followed to Lajes.

AN80 ROUTES FROM THE VIRGIN ISLANDS

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AN80 Routes from the Virgin Islands

There are several routes fanning out from the Virgin Islands, particularly from St Thomas, whose excellent facilities are a great attraction to anyone planning to set off on a long ocean passage. The main exodus occurs at the end of the winter season as boats make their way north, usually to Bermuda, either on their way home to North America or back to Europe. Because of their strategic position at the point where the Greater Antilles give way to their lesser sisters, the Virgins are also a favourite starting point for cruises in the area. Most US boats bound for the Eastern Caribbean make their first landfall in the Virgins, from where they start making their way south through the chain of the Lesser Antilles. Some come back for their return passage home, but most carry on their clockwise circuit of the Caribbean rim. In contrast, most European boats arrive in the

Virgins at the end of their Caribbean cruise and use the Virgins as a convenient springboard for the continuation of their voyage, most commonly to Bermuda and home, and occasionally to the Bahamas and Florida.

These small islands to the east of Puerto Rico are an extremely popular cruising ground, enjoying very similar weather conditions to the Lesser Antilles. The prevailing wind tends to be easterly, the trade winds being north of east in winter and south of east in summer. The trades are stronger in winter months, around 20 knots, gusting occasionally to over 30 knots. Northers can also affect the islands in winter, although not so frequently nor so strongly as in other areas, such as the Bahamas. The Virgin Islands lie in the hurricane area and they can be affected by tropical storms every year.

AN81 Virgin Islands to Panama

BEST TIME:	April to May, November to December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 400			
PILOTS:	BA: 7A, 7I US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
AN810 St Thomas 18°20'N, 64°56'W	AN811 Vieques 18°00'N, 65°13'W			
	AN814 Manzanillo 9°47'N, 79°32'W	AN815 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	1030
AN810 St Thomas	AN812 Borinquen 18°35'N, 67°10'W			
	AN813 Mopa 18°00'N, 67°40'W			
	AN814 Manzanillo	AN815 Panama	Cristobal	1058

A downwind trip at all times, this passage diagonally across the Caribbean Sea should not be undertaken during the peak months of the hurricane season, between July and October. Another period to be avoided is at the height of the winter trades, between January and the middle of March, when strong winds and high seas are the rule in the Caribbean Sea. Reference should be made to route AN74 (page 89) as directions are similar, with

the exception that for those who start off from the Virgin Islands, the recommended stop in the ABC Islands or Venezuela is not applicable unless one wishes to spend some time cruising there.

Boats setting off from St Thomas on the direct route to Panama leave Vieques Island to starboard and take their departure from the Virgins at WP AN811, 10 miles SE of Vieques. Those who prefer to call first at San Juan, Puerto Rico, take a route

ROUTES IN THE NORTH ATLANTIC

along the north coast of Puerto Rico to its western extremity and reach the Caribbean Sea through the Mona Passage. From WP AN812, 5 miles NNW of Cape Borinquen, a course can be set through the Mona Passage to WP AN813, ESE of Mona Island. Unless stopping in San Juan, the detour around the north of Puerto Rico should be avoided as it can be windless at the end of winter when the island blocks the winds.

Whichever route is chosen, be it south or north of Puerto Rico, from those waypoints AN811 or AN813 a clear course leads right across the Caribbean Sea to WP AN814 about 10 miles N of Punta Manzanillo and 30 miles from the Panama Canal entrance. The latter is reached by altering course for WP AN815 which is the landfall buoy 3 miles N of the entrance into the port of Cristobal. Traffic Control should be contacted on VHF channel 12, although small boats may enter

if they proceed carefully. Traffic lights control the entrance through the breakwaters and small boats are advised to keep as close as possible to the sides. See page 489 for detailed instructions concerning entry and transit procedure.

Most boats leave the Virgins for Panama in winter and all those who have done this passage in February complain about the rough conditions in the Caribbean Sea. A later start, when the winter trades have lost some of their power, might be preferable, although this may be too late for those planning to continue their voyage along the Pacific coast of Central America and Mexico. For those who are bound for the islands of the South Pacific an early start from the Virgins is not essential, as the seasons there are the opposite to what they are in the Caribbean and a later passage to Panama in April or early May is acceptable.

AN82 Virgin Islands to Jamaica

BEST TIME:	April to May, November		
TROPICAL STORMS:	June to November		
CHARTS:	BA: 4402 US: 400		
PILOTS:	BA: 70, 71 US: 147		
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean.</i>		
WAYPOINTS:			
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i> <i>Distance (M)</i>
Route AN82A			
AN820 St Thomas 18°20'N, 64°56'W	AN821 Vieques 18°00'N, 65°13'W	AN822 Investigator 17°45'N, 66°15'W	
	AN825 Alta Vela 17°20'N, 71°40'W		
	AN826 Plumb 17°50'N, 76°40'W		Kingston 17°58'N, 76°48'W 696
AN820 St Thomas	AN821 Vieques	AN822 Investigator	
	AN825 Alta Vela	AN827 Northeast	Port Antonio 18°11'N, 76°27'W 677
	18°15'N, 76°15'W		Ocho Rios 18°25'N, 77°07'W 716

AN80 ROUTES FROM THE VIRGIN ISLANDS

WAYPOINTS:					
Departure	Intermediate	Landfall	Destination	Distance (M)	
Route AN82B					
AN820 St Thomas	AN823 Borinquen				
	18°35'N, 67°10'W				
	AN824 Mona				
	18°00'N, 67°40'W				
	AN825 Alta Vela				
	AN826 Plumb		Kingston	705	
AN820 St Thomas	AN823 Borinquen				
	AN824 Mona				
	AN825 Alta Vela				
	AN827 Northeast		Port Antonio	686	
			Ocho Rios	724	

The direct route from St Thomas (AN82A) leaves Vieques Island to starboard, and takes its departure from WP AN821, 10 miles SE of Vieques. Course is then set for WP AN822 to stay well clear of Puerto Rico. Those who prefer to call first at San Juan, Puerto Rico, will reach Mona Passage by sailing along the north coast of Puerto Rico to its western extremity (AN82B). From WP AN823, 5 miles NNW of Cape Borinquen, a course can be set through the Mona Passage to WP AN824, ESE of Mona Island. Both routes will then set course for WP AN825, 10 miles south of Isla Alta Vela, off the southern tip of Hispaniola. From WP AN825 those intending to call at the Jamaican capital Kingston should alter course for WP AN826 off Plumb Point in the approaches to Kingston. Boats bound for ports on the north coast of Jamaica should steer for WP AN827, off Northeast Point, and then make for their port of destination. If bound for the Gulf of Mexico, one of the ports on the north coast of Jamaica will probably be preferable. From WP AN827 a course can be set for either Port Antonio or Ocho Rios, both of which are official ports of

entry. At the western extremity of Jamaica lies Montego Bay (18°28'N, 77°56'W), also a port of entry and a convenient port of departure for west-bound boats.

An alternative route (AN82C) stays north of both Puerto Rico and Hispaniola and uses the Windward Passage to regain the Caribbean Sea. No waypoints are listed as this route entails mainly coastal cruising. The advantage of the direct routes described earlier is the certainty of better winds, whereas by keeping to the north of the large islands, the trade winds are blocked and one may have to rely on coastal breezes. This is particularly the case in late spring and early summer when the trade winds have a southerly component and therefore Caribbean passages have a much better chance of favourable winds.

As with most trans-Caribbean passages, the best time is the transition months of April-May, before the start of the hurricane season, or November, at the start of the safe sailing season. Generally, favourable winds and currents can be expected along the offshore routes described above.

AN83 Virgin Islands to the Gulf of Mexico

BEST TIME:	April to May, November
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400
	US: 400
PILOTS:	BA: 69A, 70, 71
	US: 147
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Cruising Guide to Belize and Mexico's Caribbean Coast, Cruising Guide to the Northwest Caribbean.</i>

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN83A				
AN830 St Thomas 18°20'N, 64°56'W	AN831 Vieques 18°00'N, 65°13'W			
	AN832 Investigator 17°45'N, 66°15'W			
	AN835 Alta Vela 17°20'N, 71°40'W			
	AN836 Northeast 18°15'N, 76°15'W			
	AN837 Galina 18°40'N, 77°00'W			
	AN838 Cayman		Georgetown	978
	19°30'N, 81°20'W		19°18'N, 81°23'W	
	AN839 Yucatan		Galveston	1902
	21°45'N, 85°15'W		29°18'N, 94°48'W	
Route AN83B				
AN830 St Thomas	AN833 Borinquen 18°35'N, 67°10'W			
	AN834 Mona 18°00'N, 67°40'W			
	AN835 Alta Vela			
	AN836 Northeast			
	AN837 Galina			
	AN838 Cayman		Georgetown	974
	AN839 Yucatan		Galveston	1910

This is a convenient route for boats sailing to the southern states bordering on the Gulf of Mexico as it is more direct and less difficult than a crossing of the Bahamas. The route between the Virgins and Jamaica is similar to route AN82 and runs parallel to the south coasts of Puerto Rico and Hispaniola. The route then continues north of Jamaica. If a stop in Jamaica is not intended, from WP AN836, off Jamaica's northeast point, a course is set for WP AN837, N of Galina Point. The route then continues in a NW direction and passes between Little and Grand Cayman to WP AN838.

The route passes so close to Grand Cayman that a stop in Georgetown may be considered. If stopping in Georgetown, contact Port Security on VHF channel 16, which is monitored permanently. From Grand Cayman, the route continues towards the Yucatan Channel and WP AN839, off Cuba's Cape San Antonio. Route AN83B lists the waypoints for those preferring to sail along the north coast of

Puerto Rico and the Mona Passage and join the off-shore route at WP835 south of Hispaniola.

Boats bound for ports on the north side of the Gulf of Mexico, such as New Orleans, may prefer a route which stays north of all the Greater Antilles. The one distinct disadvantage of this route is the contrary Gulf Stream that will have to be faced north of Cuba. From the navigational point of view, the southern route across the Caribbean Sea, as described above, is easier and also benefits from both better winds and a favourable current for almost its entire length.

The best time for a passage along either route is the transition months of April-May, before the hurricane season, or November before the onset of winter northers which may be felt west of Jamaica and can seriously affect weather in the Gulf of Mexico. Northbound boats occasionally wait for favourable conditions to cross the Gulf of Mexico at Isla Mujeres (21°15'N, 86°45.5'W).

AN84 *Virgin Islands to Turks & Caicos*

BEST TIME:	April to May, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402			
	US: 400			
PILOTS:	BA: 70, 71			
	US: 147			
CRUISING GUIDES:	<i>Yachtsman's Guide to the Bahamas, Island Expedition: The Turks and Caicos, Turks and Caicos Chart.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN84A				
AN840 St Thomas 18°20'N, 64°56'W	AN841 Culebrita 18°22'N, 65°08'W	AN842 Turk 21°35'N, 71°00'W	Cockburn Town 21°28'N, 71°06'W	404
			Cockburn Harbour 21°30'N, 71°31'W	424
Route AN84B				
AN840 St Thomas	AN841 Culebrita AN843 Borinquen 18°35'N 67°10'W AN844 Mouchoir 20°35'N, 71°00'W		Cockburn Town Cockburn Harbour	429 438

There is a choice of two routes for this passage. The offshore route AN84A leaves all banks (Navidad, Silver, and Mouchoir) to port and keeps well clear of all dangers. Route AN84B stays south of the banks and runs closer to Puerto Rico. The offshore route is both easier to navigate and benefits more from the favourable current. The best time for passages on either route is at the change of seasons, but even at the height of the winter trades, the only inconvenience will be the occasional strong wind.

On leaving St Thomas, and having cleared Savana Island, off its western extremity, make for WP AN841. From this waypoint, just north of the light on Culebrita Island, route AN84A makes for WP

AN842, 12 miles NE of Grand Turk. The course is altered there to enter Turks Passage and make for Cockburn Town, the main settlement and port of entry on Grand Turk. Alternatively, one may prefer to cross over to Cockburn Harbour, on South Caicos.

The southern route (AN84B) also takes its departure from WP AN841 from where the course leads to WP AN843 off Cape Borinquen. The route then runs in a NW direction south of Navidad and Silver Banks to WP AN844, SW of Mouchoir Bank. From there the course is altered to pass at a safe distance SW of Sandy Cay, at the southern entrance into Turks Passage.

AN85 *Virgin Islands to Bahamas*

BEST TIME:	December to May
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400
	US: 403
PILOTS:	BA: 70, 71
	US: 147
CRUISING GUIDES:	<i>Yachtsman's Guide to the Bahamas.</i>

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN85A				
AN850 St Thomas 18°20'N, 64°56'W	AN851 Culebrita 18°22'N, 65°08'W			
	AN852 Silver 21°10'N, 70°00'W			
	AN853 Caicos 22°20'N, 72°10'W			
	AN854 Samana 23°10'N, 73°20'W	AN855 Salvador 23°54'N, 74°32'W	Cockburn Town 24°03'N, 74°31.5'W	644

To reach the Bahamas from the Virgin Islands one can take either an inshore route, along the north coasts of Puerto Rico and Hispaniola (AN85B), or an offshore route staying outside all islands (AN85A). As the inshore route requires mostly coastal cruising, no waypoints are given. The offshore route (AN85A) is both shorter and faster especially if the destination is in the Northern Bahamas. It follows a NW course parallel to the chain of islands as far as the NE Providence Channel. Whether going offshore immediately on leaving St Thomas, or stopping first in San Juan, Puerto Rico, the course should pass Navidad, Silver, and Mouchoir Banks at a safe distance. The offshore passage can be made at any time outside of the hurricane season. Between December and April, at the height of the winter trades, fair, if strong winds, can be expected as well as the favourable NW setting Antilles Current. Light winds and even calms can be expected at the change of seasons, especially in May. The route can be affected by depressions passing to the north with resulting NW winds.

On leaving St Thomas, and having cleared Savana Island, off its western extremity, from Savana Passage and WP AN851 a course is set for WP AN852, north of Silver Bank. The route continues in a NW direction to WP AN853 off Caicos Passage. The Southern Bahamas can be reached via several deep water passes, all of which are sub-

ject to strong currents, as indeed is the entire area of the Bahamas. The nearest island to clear into the Bahamas is Mayaguana, whose eastern point should be given a wide berth to avoid the reefs surrounding it. Although Abrams Bay, the main settlement on the south coast of the island, is not an official port of entry, boats are allowed to stop there provided they complete formalities in the first official port of entry. The nearest is Cockburn Town on the island of San Salvador. If continuing on the offshore route, course for the latter should not be set until one is well clear of Samana Cay, a low unlit island lying between Mayaguana and San Salvador. From WP AN853 the course should be altered for WP AN854 east of Samana. From there a course can be set for WP AN855.

After landfall is made at WP AN855, 5 miles SE of Sandy Point, the SW extremity of San Salvador, the west of the island should be passed at a safe distance before approaching the main settlement at Cockburn Town. Entry formalities can be completed there, or at the airport, where the officials are based. There is an anchorage off the settlement or a small marina one mile further north. Riding Rock Marina has a difficult entrance with a maximum depth of 7 ft at high tide. The GPS latitude of the entrance channel into the small marina has been reported as 24°03.4'N. The marina can be contacted on VHF channel 6.

AN86 *Virgin Islands to Florida*

BEST TIME:	November to May
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400 US: 403
PILOTS:	BA: 69, 70, 71 US: 140, 147
CRUISING GUIDES:	<i>Cruising Guide to Eastern Florida.</i>

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN86A				
AN860 St Thomas 18°20'N, 64°56'W	AN861 Culebrita 18°22'N, 65°08'W			
	AN863 Abaco 26°50'N, 76°30'W			
	AN864 Bahama 27°30'N, 78°00'W		St Augustine 29°55'N, 81°16'W	1134
Route AN86B				
AN860 St Thomas	AN861 Culebrita AN862 Providence 25°40'N, 76°50'W		Fort Lauderdale 26°05.5'N, 80°06'W	974

For boats bound for Florida there are several alternative routes to choose from. Between April and June, the most direct route runs in a NW direction parallel to the Turks and Caicos Islands as well as the Bahamas as far as Great Abaco (AN86A). This offshore route benefits from strong winds throughout the winter months and also the favourable Antilles Current. More benign conditions will be experienced at the change of seasons, in April and May. Directions for this route are similar to those for both AN85 and AN87C to which reference should be made. Boats bound for ports in South Florida can follow route AN86A as far as Great Abaco island where route AN86B

branches off through the NE and NW Providence Channels and crosses the Gulf Stream to Florida.

The other alternatives consist of island hopping, either right through Turks and Caicos and the Bahamas, or along the northern shores of Puerto Rico, Hispaniola, and Cuba (AN86C). In the latter case, Florida is reached through the Old Bahama Channel, south of the Great Bahama Bank. Both these routes can be used at any time between November and June, but as they cannot be regarded as offshore passages they are not described in detail, nor are there any waypoints listed.

AN87 *Virgin Islands to North America*

BEST TIME:	Late April to June (offshore) December to May (via Bahamas)
TROPICAL STORMS:	June to November
CHARTS:	BA: 4403 US: 403
PILOTS:	BA: 69, 70, 71 US: 140, 147
CRUISING GUIDES:	<i>Coastal Cruising Guide to the Atlantic Coast.</i>

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN87A				
AN870 St Thomas 18°20'N, 64°56'W	AN871 Culebrita 18°22'N, 65°08'W	AN872 Brenton 41°24'N, 71°16'W	Newport 41°29'N, 71°20'W	1435
		AN873 Chesapeake 36°45'N, 75°45'W		1249
Route AN87B				
AN870 St Thomas	AN871 Culebrita	AN874 off Beaufort 34°30'N, 76°40'W	Beaufort 34°43'N, 76°40'W	1171
Route AN87C				
AN870 St Thomas	AN871 Culebrita AN875 Abaco 26°50'N, 76°30'W		Charleston 32°44'N, 79°50'W	1214

The end of the winter sailing season in the Eastern Caribbean is the time when most boats set off on this passage, which is also the time when best conditions can be expected for most of the way. On the direct route (AN87A), which does not call at Bermuda, favourable winds can be expected as far as the northern limit of the trade winds. Southerly winds occasionally last right through the zone of calms that extends between latitudes 25°N and 30°N. The temptation to ride the Gulf Stream should be resisted if this passage is made early in the season to avoid being caught by a late norther. For boats bound for ports to the north of Cape Hatteras similar directions apply as for route AN88 and in fact many people prefer to break the voyage in Bermuda and reach the more distant ports on the US east coast or even Canada that way.

For boats bound for ports south of Cape Hatteras a detour via Bermuda is not justified. They have a choice of either a slightly indirect route (AN87C) or the direct route AN87B, which follows a rhumb line from the Virgins to the US east coast.

Although this route is undoubtedly the shortest, as it is the most direct, it may not be the quickest as it cuts diagonally across the zone of calms that will be found north of latitude 25°.

Boats taking route AN87C will sail on a NW course parallel to the Turks and Caicos and Bahamas as far as the Abacos before heading for their destination. On leaving St Thomas, and having cleared Savana Island, off its western extremity, from WP AN871 a direct course, which keeps well outside all dangers, can be set for WP AN875, north of Great Abaco. From there the route turns north and enters the Gulf Stream. Both winds and current are favourable along most of this route.

Whichever alternative is chosen, the optimum time for leaving the Virgins also coincides with the end of the safe cruising season in the Eastern Caribbean. A direct passage along any of the above routes should not be attempted during the winter months when a slower cruise through the Bahamas to Florida is to be preferred and US ports can be reached in a more leisurely way.

AN88 *Virgin Islands and Puerto Rico to Bermuda*

BEST TIME:	Late April to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4403			
	US: 108			
PILOTS:	BA: 70, 71			
	US: 140, 147			
CRUISING GUIDES:	<i>Yachting Guide to Bermuda.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN880 St Thomas 18° 20' N, 64° 56' W	AN881 Culebrita 18° 22' N, 65° 08' W	AN883 David 32° 21' N, 64° 38' W	St George's 32° 22' N, 64° 40' W	854
AN882 Puerto Rico 18° 29' N, 66° 07' W		AN883 David	St George's	865

Bermuda provides an attractive stop for boats sailing from the Virgins or Puerto Rico to either Europe or the US east coast. Best conditions on this route, which crosses the Horse Latitudes, will be found in late spring or early summer. At this time of year the trade winds are more E or SE in direction than in winter. Even if the winds blow from the NE, it does not matter if one is pushed slightly to the west of the desired course, because the further north one goes, the greater likelihood there is of a shift of wind to the SE or even S. If favourable winds are not found the ground lost to the west can be regained, by motoring through the calms. North of the zone of calms, the winds become variable, with a predominance of S or SW winds and only rarely N winds. The danger of a winter norther is minimal after the middle of April when most passages are made on this route. Generally, the best conditions are encountered in May. This route is not recommended after the end of June because of the increased frequency of hurricanes. Those who are determined to make good time to Bermuda should be prepared to motor if they encounter any calms. This advice should be fol-

lowed especially later in the season when there is a higher risk of being caught by a hurricane and one should not dally too long in this area. Summer passages along this route are definitely discouraged as the tracks of past hurricanes almost coincide with the direct course to Bermuda. Tropical depressions become more frequent after the beginning of July and even if they do not generate strong winds, the weather in their vicinity is very unsettled with heavy rain. If such a depression forms close to the Virgin Islands, contrary winds can be expected on the way to Bermuda.

Boats leaving from St Thomas usually reach the open sea through Savana Passage, west of the island. From WP AN881 a direct course leads all the way to Bermuda where landfall is made at WP AN883. If leaving from Puerto Rico, from WP AN882 a course can be set for the same WP AN883, one mile east of St David's Head in the approaches to the Town Cut. This leads into St George's Harbour, which is Bermuda's only port of entry. The entrance through Town Cut is difficult to negotiate in the dark and those unfamiliar with it should avoid using it at night.

AN89 Virgin Islands to Azores

BEST TIME:	May to June			
TROPICAL STORMS:	June to November			
CHARTS	BA: 4012			
	US: 120			
PILOTS	BA: 67, 71			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN890 St Thomas 18°20'N, 64°56'W		AN891 Faial 38°30'N, 28°50'W	Horta 38°32'N, 28°37.5'W	2245
		AN892 Flores 39°20'N, 31°18'W	Lajes 39°23'N, 31°10'W	2157

Because of the extensive area of variable winds that lies across the direct route to the Azores, the recommended route across the Atlantic leads first in a NE direction into an area of prevailing westerly winds. As such a route passes close to Bermuda, most boats taking it usually stop there before continuing the voyage to the Azores. Directions for those routes are found on pages 105 and 138 (routes AN88 and AN125).

Although considerably shorter, the great circle route can seldom be sailed for its entire length and a good supply of fuel should be carried so as to motor through the almost unavoidable areas of calms. In spring and early summer, the winds as far as latitude 26°N or 28°N will be south of east. Further north they will become light and variable, with prolonged calms a strong possibility. The optimum time for a direct passage is between May and July. April is probably too early as the frequency of gales in the Atlantic is still high. After July the

frequency of hurricanes increases and if a summer passage is considered, the Caribbean should only be left with a reasonable long term forecast. If no tropical depression is seen to be forming in the area, there is a fairly good chance of not being overtaken by the resulting storm.

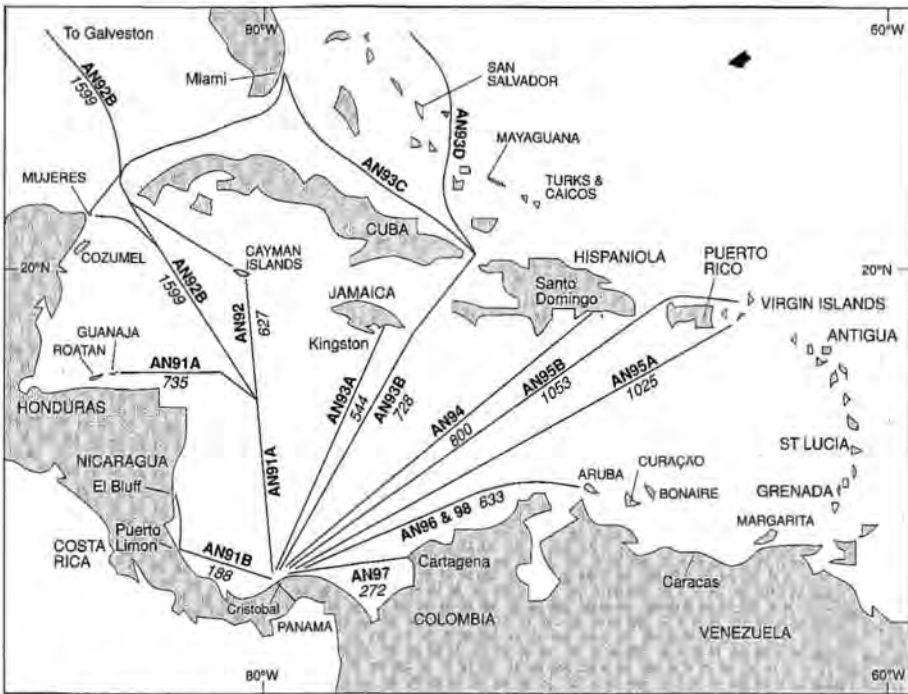
Intermediate waypoints cannot be given as the route sailed will depend entirely on the winds encountered. The most popular landfall in the Azores continues to be Horta, on the island of Faial, where there is a good marina and entry formalities can be completed. To reach Horta, landfall is made at WP AN891, 3 miles SW of Faial. The island's south coast is followed before turning north at the conspicuous Mount Guia.

The recently improved port of Lajes, on the westernmost island of Flores, offers the possibility of clearing into the Azores earlier. Having made landfall at WP AN892, 3 miles SW of Flores, the island's south coast is followed to Lajes.

AN90 CARIBBEAN ROUTES FROM PANAMA

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AN90 CARIBBEAN ROUTES FROM PANAMA



AN90 Caribbean routes from Panama

Most routes in the Caribbean Sea either start or end in Panama, and because they have many features in common it is worth considering them together. Because of the multitude of destinations, the routes are difficult to define, although there are certain considerations that have to be taken into account whichever route is contemplated. Most of these considerations are closely related to weather, and passages through the Caribbean are discouraged during the hurricane season, especially during the months of highest frequency, from August to October. Some of the late hurricanes actually form in the Caribbean and warnings are therefore shorter than when the depression has been tracked across the Atlantic. Rough weather can also be experienced in the Western Caribbean at the height of the winter trades, whereas in the Gulf of Mexico winter is associated with violent northerly storms. Another concern in the Gulf of Mexico are the strong currents whose direction is often different to that depicted on charts.

The entire area is affected by winter northers, although these winter storms gradually decrease in intensity further south and are not so strong south of Honduras. However, these northers, combined with strong NE trade winds can result in very strong winds described as intensified trades in the most southerly portion of the Caribbean Sea. From November to March the winds off the coast of Central America tend to be more northerly than the northeasterlies which prevail at other times of the year. This coast is particularly affected by land and sea breezes. The sea breeze commences from the NE in mid-morning and gradually increases, drawing around to the E between mid-afternoon and sunset. The breeze carries on moving around clockwise until in the night it blows moderately from the SE. In the more southern coastal areas this land breeze can become W and SW. The summer rainy season is characterised by squally weather especially in the late afternoon. It is rarely calm and a similar pattern of land and sea breezes prevails as in the winter.

ROUTES IN THE NORTH ATLANTIC

Eastbound passages from Panama can be very difficult at most times of the year, because of the prevailing direction of the winds and current. Many people are tempted to make this passage late in the year so as to arrive in the Lesser Antilles during the hurricane-free season. In such a case, the eastward passage must be made before the onset of the strong winter trades. Better and more comfortable passages have been made in late spring or early summer, although this has the disadvantage of arriving in the Lesser Antilles at the beginning of the hurricane season. In order to make this passage at the best time, and also avoid the hurricane season, there are two options. If the Panama Canal cannot be transited before winter it is better to wait until April or May and then head for Venezuela and the islands to the north of it. As this area is mostly outside the hurricane zone it is safe to cruise there until November when the

voyage can be continued to the Lesser Antilles. If the Canal is transited in late October or early November and the trade winds are already too strong to attempt a direct passage, it may be worth approaching the Lesser Antilles from the north, by sailing first to the Virgin Islands via Puerto Rico. This latter course of action will depend greatly on the windward performance of the boat, as most of the passage will be hard on the wind. An easier option would be to reach the Eastern Caribbean in shorter stages, either by following the north coast of South America via the San Blas Islands, Colombia, the ABC Islands, and Venezuela, or to take a northern sweep via the Dominican Republic and Puerto Rico. Whichever alternative is chosen, the onward passage from Panama should be carefully planned to avoid being immobilised in Panama while waiting for the trade winds to subside.

AN91 Panama to Central America

BEST TIME:	November, mid-April to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A, 69A US: 148			
CRUISING GUIDES:	<i>Cruising Guide to the Northwest Caribbean, Cruising Guide to Belize and Mexico's Caribbean Coast, Cruising Guide to the Caribbean.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN91A				
AN910 Panama	AN911 Roncador			
9°26'N, 79°55'W	13°30'N, 79°40'W			
	AN912 Serrana			
	14°25'N, 79°47'W			
	AN913			
	15°35'N, 81°30'W			
	AN914 Gorda			
	16°00'N, 82°05'W			
	AN915 Hobbies		Guanaja	735
	16°10'N, 83°10'W		16°28'N, 85°54'W	
			Coxen Hole	773
			16°18'N, 86°35'W	
			Livingston	900
			15°49'N, 88°45'W	
			Belize City	875
			17°30'N, 88°10'W	

AN90 CARIBBEAN ROUTES FROM PANAMA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN91B				
AN910 Panama			Puerto Limon 10°00'N, 83°03'W	188
			El Bluff 12°01'N, 83°44'W	273

On leaving the Panama Canal area there are two alternatives, either a direct offshore route to the north of Honduras (AN91A), or an indirect route for those who intend to cruise on their way through Honduras, Belize, or other parts of Central America (AN91B).

The more direct offshore route requires careful navigation, especially at the beginning, because of the numerous banks and cays that lie off the coast of Central America. From WP AN910, off the entrance into the Panama Canal, the course goes due north to WP AN911, 20 miles east of Roncador Bank. A northerly course will be maintained to the next WP AN912 to pass at a safe distance east of Serrana Bank. From there, a NW course for WP AN913 follows a relatively deeper channel. Boats bound for the Bay Islands of Honduras or beyond, from WP AN913 should set a course for WP AN914, 20 miles ENE of Gorda Cay. As this course leads over some shallow spots it should only be taken if the weather is not too rough, otherwise the seas breaking over the banks can make conditions hazardous. The course from Gorda Cay passes north of Hobbies Cays through WP AN915, from where a clear course leads to the islands of Guanaja or Roatan (Coxen Hole), both of which have ports where entry formalities into Honduras can be completed.

Boats bound for Guatemala's Rio Dulce can clear

into that country at Livingston. From the Bay Islands, the route continues into the Gulf of Honduras. A shallow bar at the river entrance has to be negotiated to reach Livingston, and this is best done at high tide.

The extensive cruising grounds of Belize are easily reached from the Bay Islands. Boats normally clear into Belize at Belize City.

The alternative inshore route (AN91B) follows the Mosquito Coast of Nicaragua and Honduras. On leaving the Panama Canal, a first stop can be made in Costa Rica's Puerto Limon. If continuing along the coast to Nicaragua, the official port of entry there is El Bluff.

Those who take the offshore route on leaving Panama can stop at either San Andres or Providencia, two islands just north of Panama which belong to Colombia. The GPS coordinates of the landfall buoy off Puerto Isabel, on Providencia, have been reported as 13°24'N, 81°21.6'W. However, if conditions are unfavorable or visibility poor, it is strongly recommended to take the offshore route described earlier and stay well clear of all dangers.

The cruising grounds of Honduras, Guatemala, and Belize can be explored before rejoining the offshore route which continues to the Gulf of Mexico as described in AN92.

AN92 Panama to the Gulf of Mexico and Florida

BEST TIME:	November, mid-April to June
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400 US: 400, 401
PILOTS:	BA: 7A, 69A, 70 US: 147, 148
CRUISING GUIDES:	<i>Cruising Guide to the Northwest Caribbean, Cruising Guide to Belize and Mexico's Caribbean Coast, Cruising Guide to the Florida Keys.</i>

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN92A				
AN920 Panama 9°26'N, 79°55'W	AN921 Roncador 13°30'N, 79°40'W			
	AN922 Serrana 14°25'N, 79°47'W			
	AN923 Cayman 19°23'N, 81°27'W		Georgetown 19°18'N, 81°23'W	627
Route AN92B				
AN920 Panama	AN924 Sueno 14°20'N, 80°45'W			
	AN923 Cayman 19°23'N, 81°27'W		Georgetown	610
AN920 Panama	AN924 Sueno	AN925 Swan 17°25'N, 85°50'W		
		AN926 Sur 21°10'N, 86°42'W	Isla Mujeres 21°15'N, 86°45.5'W	881
		AN927 Yucatan 21°50'N, 85°10'W	Galveston 29°18'N, 94°48'W	1599

As the direct route from Panama to the Gulf of Mexico passes close to a number of attractive cruising grounds, the voyage can be interrupted in any of these Central American destinations, as described in AN91. Northbound passages to the Yucatan Channel can be made either nonstop, albeit through an area encumbered by dangers, or can be interrupted at either Grand Cayman or Swan Island.

As in the case of all Caribbean passages, the timing for this route is crucial. Apart from the risk of being caught by a hurricane, especially from July to October, many boats have got into difficulty when hit by a strong norther in the Gulf of Mexico. The whole area is affected by northers from November until the beginning of April and their effect can be felt as far south as Panama, although their strength is greatly diminished by the time the winds reach those latitudes. The violent conditions produced by the northerly wind blowing against the strong currents in the Gulf have caused boats to capsize or even founder. The best time to make this passage is from the middle of April to the end of June, when there is a reasonable chance of winds with a southerly component. Northbound passages can also be made from late October to early December, but the weather must be watched more carefully. Both periods avoid the worst of the win-

ter northers and fall outside the months with a high frequency of hurricanes. If the passage is made in winter, it is recommended to wait until immediately after a norther, when light conditions may be expected for a few days.

In the summer the prevailing winds are from the SE and the weather is rainy with heavy squalls and calm periods. From April to July land and sea breezes alternate along the south coast of the USA. The Gulf is one of the areas most affected by hurricanes between June and November, being threatened both by tropical storms that form in the Gulf itself and those travelling from other areas of the Caribbean. From September to November hurricanes spawned in the Western Caribbean are most likely to pass through the Yucatan Channel and then curve around north and east towards Cuba and Florida. Tornadoes, waterspouts, and arched squalls are also a feature of the hurricane season.

The prevailing winds in the Western Caribbean are NE to E, with a southern component making itself felt north of Yucatan. The currents along this route set in a NW direction attaining their strongest rate in the Yucatan Channel. The sets in the Gulf of Mexico are complex and difficult to predict, particularly in the area of the Dry Tortugas where extreme caution should be exercised.

AN90 CARIBBEAN ROUTES FROM PANAMA

Northbound boats have a choice of two routes, one which stays well offshore of all dangers and is more attractive to those intending to stop at Grand Cayman (AN92A), and a slightly shorter route taking a more direct course to the Yucatan Channel (AN92B). From WP AN920, north of the Panama Canal entrance, route AN92A goes due north to WP AN921, 20 miles east of Roncador Bank. The northerly course will be maintained to the next WP AN922 east of Serrana Bank. From there, a course is set for WP AN923 off Grand Cayman. On arrival off Georgetown contact Port Security on VHF channel 16, which is monitored permanently.

Boats taking route AN92B, from WP AN920 should set a course for WP AN924, halfway between Sueno and Serrana Banks, both of which have lights. From there, boats that have decided to stop at Grand Cayman should alter course almost due north over a shallow bank to WP AN923, off the NW extremity of Grand Cayman. From there, the course turns east to reach the capital Georgetown. Rather than stop in Grand

Cayman, another convenient stop on the way to the Yucatan Channel is at Swan Island. If such a stop is considered, from WP AN924 the course is altered to pass over Gorda Bank to WP AN925 off Swan Island's eastern point. Going north from Swan Island, one can either head straight for the Yucatan Channel or make another stop at Isla Mujeres, which is a favourite place at which to wait for favourable conditions to cross the Gulf of Mexico. To call at Isla Mujeres, set a course for WP AN926, SE of Punta Sur, at the island's SE extremity. Isla Mujeres is an official port of entry into Mexico. If no stops are intended anywhere en route, from WP AN924, a course should be set for WP AN927 off Cuba's Cape San Antonio, which marks the eastern side of the Yucatan Channel.

Whether sailing nonstop or planning to visit some places on the way, this route has many attractions for boats bound for US ports in the Gulf of Mexico as well as on both coasts of Florida. Other routes, such as AN93, should be considered for more northern destinations on the east coast of the USA.

AN93 Panama to Jamaica, Bahamas and USA

BEST TIME:	April to June, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012 US: 124			
PILOTS:	BA: 7A, 70 US: 140, 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Coastal Cruising Guide to the Atlantic Coast, Yachtsman's Guide to the Bahamas.</i>			
WAYPOINTS:				

Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN93A AN930 Panama 9°26'N, 79°55'W	AN931 Plumb 17°45'N, 76°50'W		Kingston 17°58'N, 76°48'W	544
Route AN93B AN930 Panama	AN932 Morant 17°15'N, 75°32'W	AN934 Maisi 18°25'N, 75°16'W		728

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN93D				
AN930 Panama	AN932 Morant			
	AN933 Navassa			
	AN934 Maisi		Matthew Town 20°57'N, 73°41'W	787
	AN935 Abaco		Cockburn Town 24°03'N, 74°31.5'W	978
	26°50'N, 76°30'W		Beaufort 34°43'N, 76°40'W	1650
	AN936 Bahama		Charleston 32°44'N, 79°50'W	1595
	27°30'N, 78°00'W			

This northbound route through the Windward Passage is favoured by those who wish to reach ports along the east coast of the USA, although the times when this route can be sailed comfortably are relatively short. The best periods are either between April and June, when the trades have lost their winter strength and winds have a southerly element in them, or November, before the onset of the strong winter trades. When sailing this route late in the year, there is also the danger of encountering a norther. Passages during the hurricane season should be avoided, especially during the months of highest frequency (August to October). During all other summer months the weather should be observed closely.

Navigation in the central Caribbean Sea is made difficult by the large number of banks, reefs, and shoals, aggravated by the strong west-setting current. Because of this current, a direct course for Jamaica leads dangerously close to the New Bank and Pedro Bank and adequate allowance should be made for leeway when setting a course to windward of them. Both these banks can be very dangerous in heavy weather and their vicinity should be avoided. From Panama and WP AN930 the direct route (AN93A) passes east of the various banks to WP AN931 south of Plum Point, in the approaches to the Jamaican capital Kingston.

If a stopover in Jamaica is not intended, on leaving Panama from WP AN930, the course should be set for WP AN932 about 20 miles SE of Morant Cays, SE of Jamaica. This offshore route (AN93B) leads well clear of all dangers. From AN932 the course can pass either to the west of Navassa Island, or between this island and Cape Tiburon,

the SW extremity of Hispaniola. In strong winds it is safer to take the westerly route to WP AN933, 10 miles west of Navassa Island, to avoid the breaking seas on the shallow banks lying close to the Haitian coast. The course then leads through the Windward Passage to WP AN934, SE of Cape Maisi, at Cuba's eastern extremity. A traffic separation zone is in operation off this point.

Having reached the Windward Passage boats bound for South Florida should take the route which runs along the north of Cuba and passes through the Old Bahama and Santaren Channels (AN93C). No waypoints are listed for this inshore route. The route to northern ports on the US east coast (AN93D) cuts right across the Outer Bahamas. Initially the route passes west of Great Inagua and those who wish to stop in the Bahamas can clear in at Matthew Town, the main settlement on that island. The route continues northwards through the Mira-Por-Vos Passage, west of Acklins and Crooked Islands and also west of San Salvador Island before gaining the open ocean. From San Salvador, a direct route can be set to ports north of Cape Hatteras, whereas for ports to the south of Cape Hatteras, the route turns NW and runs parallel to the chain of islands. Attention should be paid to the current setting strongly to the NW along the Northern Bahamas, which is a continuation of the Antilles Current. From WP AN935, north of Great Abaco, the route turns north and enters the Gulf Stream. For ports in Northern Florida or South Carolina, it may be necessary to continue to WP AN936, north of Grand Bahama, before the course is altered for the port of destination. To take full advantage of the Gulf Stream,

especially if one's destination is in North Florida or South Carolina, that initial course may have to continue in a NW direction so as to reach the area of the strongest current closer to the Florida coast.

The Windward Passage is clear of dangers but attention is drawn to those continuing their voyage northwards through Caicos Passage, between

Mayaguana Island and the Caicos Bank. Strong currents have been recorded in the Caicos Passage, which have caused many ships and yachts to be lost on the reefs surrounding Mayaguana Island. The currents appear to be much stronger than stated and are difficult to detect, especially if one sails through the area by night.

AN94 Panama to Hispaniola

BEST TIME:	May to June, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402			
	US: 402			
PILOTS:	BA: 7A, 70			
	US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN940 Panama 9°26'N, 79°55'W	AN941 Palenque 18°05'N, 70°00'W	AN942 Domingo 18°23'N, 69°54'W	Santo Domingo 18°28'N, 69°53'W	800

Because the prevailing winds in the Caribbean Sea are NE or E, all destinations on this route are to windward of Panama for most of the year. Unless there is a shift of wind to the south, it would be better to follow directions as for route AN93B and then work one's way eastward along the south coast of Hispaniola with the help of land breezes. Close inshore there is sometimes an east-setting current. Boats bound for the north coast of Haiti

and Dominican Republic should follow the same directions as for route AN93B as far as the Windward Passage.

From WP AN940 outside the entrance to the Panama Canal, a direct course leads right across the Caribbean Sea to WP AN941, 10 miles SSE of Punta Palenque. The course is altered there for WP AN942 in the approaches to Santo Domingo, the Dominican capital.

AN95 Panama to Virgin Islands

BEST TIME:	May to June, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A, 70 US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Virgin Islands, Yachtsman's Guide to the Virgin Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN95A				
AN950 Panama 9°26'N, 79°55'W	AN951 Manzanillo 9°47'N, 79°32'W	AN952 Vieques 18°00'N, 65°13'W	Charlotte Amalie 18°20'N, 64°56'W	1025
Route AN95B				
AN950 Panama	AN951 Manzanillo AN953 Mona 18°00'N, 67°40'W AN954 Borinquen 18°35'N, 67°10'W		Charlotte Amalie	1053

This is a difficult route throughout the year on account of the prevailing winds and the west-setting current. The direct route offers two alternatives, either south of Puerto Rico (AN95A), or via the Mona Passage and north of Puerto Rico (AN95B). On both those routes the initial course has to clear Manzanillo Point at WP AN951 before a clear course can be set diagonally across the Caribbean Sea. Boats bound directly for St Thomas will make their landfall at WP AN952, off Vieques Island, east of Puerto Rico. Boats preferring to sail around the north coast of Puerto Rico will make their landfall at WP AN953 at the entrance into the Mona Passage. The route then swings around the NW point of Puerto Rico at WP AN954 from where it runs parallel to the north coast as far as St Thomas.

These two direct routes have a better chance of favourable conditions in early summer, when SE winds are not uncommon. Lighter winds may be experienced at the change of seasons, another time when this passage can be attempted. At all other

times two radically different routes offer more attractive alternatives. Depending on the time of year, it might be better to sail route AN93 through the Windward Passage and then turn east along the north coasts of Hispaniola and Puerto Rico. Another possibility is to sail as close to the wind as possible to the south coast of Hispaniola and then continue to the Virgins by either staying south of Puerto Rico or going north of the island through the Mona Passage. See also route AN94.

As none of the above alternatives should be attempted during the hurricane season, a more drastic alternative may have to be contemplated entailing a lengthy detour through the Southern Caribbean. Such a route has the attraction that it can be sailed at almost any time of the year. This entails a detour to Venezuela and the islands off the Venezuelan coast and offers the possibility of spending the summer in this safer area before heading north at the end of the hurricane season. Routes AN97 and AN98 have more details.

AN96 Panama to Lesser Antilles

BEST TIME:	April to May, November
TROPICAL STORMS:	June to November
CHARTS:	BA: 4402 US: 402
PILOTS:	BA: 7A, 70 US: 147, 148
CRUISING GUIDES:	<i>The Lesser Antilles, Cruising Guide to the Caribbean, Sailor's Guide to the Windward Islands, Yachtsman's Guide to the Windward Islands, Cruising Guide to the Leeward Islands.</i>

This can be a very rough trip as the direct passage is to windward all the way. It is a challenge that is faced by all those who intend to head east after transiting the Panama Canal. Because of the sheer difficulty of reaching the Eastern Caribbean non-stop, most boats break up the voyage into shorter stages by stopping at some places on the way. Some call in first at the San Blas Islands, for which the compulsory cruising permit should be obtained before leaving Cristobal. An additional permit must be obtained on arrival in Porvenir, which is an obligatory stop for those wishing to cruise the San Blas Islands. Whether calling at the San Blas Islands or not, a further stop can be made in Colombia. The next stop could be the island of Aruba, unless one is prepared to sail nonstop to the Lesser Antilles, a task which is not easily accomplished because of the contrary wind and current along the Venezuelan coast.

The best time for a passage along a southern route is between June and August, when the trade winds are less consistent in both strength and direction than in winter. October and November, the

other two months when one can expect lighter winds, are still in the hurricane season, and although Venezuela and the offlying islands are mostly outside the hurricane belt, conditions in the Western Caribbean can become extremely uncomfortable if a hurricane is passing farther to the east or north. The worst time to do this passage is at the height of the winter trades, from January to early April.

The eastbound passage through Venezuelan waters should be made as close inshore as possible to take advantage of both land and sea breezes and a favourable current that runs close to the coast. At night the trade winds usually die away and this is the time to sail inshore to use the land breeze. A boat which sails well to windward can take an offshore tack during the day and head for the shore before nightfall. In this way Grenada can be reached in short hops and from there any of the other islands in the Eastern Caribbean. The first stage of an eastbound voyage is described in detail in route AN97. An alternative way of reaching islands in the NE Caribbean is described in route AN95.

AN97 Panama to Colombia

BEST TIME:	April to June, November
TROPICAL STORMS:	June to November
CHARTS:	BA: 4402 US: 402
PILOTS:	BA: 7A US: 148
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
AN970 Panama 9°26'N, 79°55'W	AN971 Manzanillo W 9°48'N, 79°35'W	AN972 off Cartagena 10°20'N, 75°45'W	Cartagena 10°25'N, 75°32'W	272

ROUTES IN THE NORTH ATLANTIC

Reaching the Atlantic coast of Colombia from neighbouring Panama is not easily accomplished at any time of the year on account of the contrary wind and strong current. A convenient stop en route is the San Blas Islands, which belong to Panama. The route then cuts across the Gulf of Darien to Cartagena, an attractive historic town, which has become the most popular port of call among cruising boats visiting Colombia. From WP AN970, at the entrance to the Panama Canal, a first course should be set for WP AN971, 10 miles N of

Punta Manzanillo. The course is then altered for WP AN972 in the approaches to the port of Cartagena. The area should be approached with caution because of the dangers in the approaches to Cartagena. Also avoided should be the silted Boca Grande as the dredged entrance is Boca Chica, identified by a landfall buoy, close to the end of Isla de Tierra Bomba. An 8 mile long channel leads northward through the shallow Bahía de Cartagena to the commercial port and two marinas.

AN98 Panama to Venezuela and the ABC Islands

BEST TIME:	April to June, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A, 71 US: 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Cruising Guide to Venezuela and Bonaire.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN980 Panama 9°26'N, 79°55'W	AN981 Gallinas 13°00'N, 71°40'W	AN982 Aruba 12°35'N, 70°05'W	Oranjestad 12°31'N, 70°00'W	633

Those who do not intend to stop in Colombia are faced with a long offshore tack to WP AN981, 30 miles north of Punta de Gallinas. Having reached that point, a first stop can be made in Aruba, where Port Control should be contacted on VHF channel 16 for berthing and clearance instructions before entering Oranjestad.

The above course is difficult, if not impossible, to hold against the prevailing NE or E winds of winter and this passage is better attempted at the change of seasons. Light winds and even calms occur sometimes in November, and if one is prepared to use the engine good progress can be made while favourable conditions last. Better conditions may be encountered early in summer, when a southern component in the trade winds may provide some help in one's tacking efforts.

At all other times there is unfortunately no alternative to a hard beat to windward and the undisputed difficulty of this route must be seriously considered before including it in one's overall cruising plans. A direct nonstop route eastwards from Panama is extremely difficult because of both adverse winds and current, which can set westwards at up to 2 knots. At the height of the trade

wind season the winds themselves often blow at force 7 or even 8 and this combined with the current makes progress almost impossible. The logical solution is to cover this section in short cruising stages by sailing first to the San Blas Islands, then Cartagena in Colombia (see route AN97), where to wait for a favourable change in the weather. Occasionally the predominantly easterly winds will have enough north in them to allow some short tacks along the Colombian coast. Such tacks should be very short so as to keep out of the strength of the main west-setting current and also benefit from some shelter from the swell. Detailed coastal charts will be needed as well as both a boat capable of beating to windward and a crew prepared to put up with the hard going.

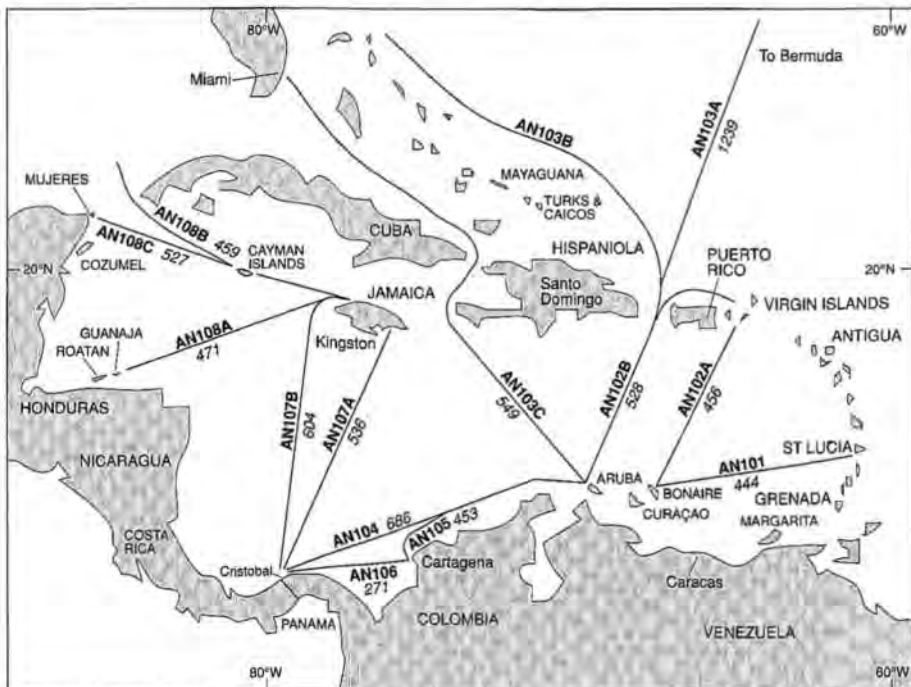
A different way to reach Venezuela and the ABC Islands is to reserve them for the end of a Caribbean cruise. In such a case, it is both easier and more comfortable to sail north on leaving Panama by following the directions for one of the northbound routes and eventually reach Venezuela from the north and Lesser Antilles. See routes AN94 and AN95 for more details.

AN100 ROUTES IN THE CARIBBEAN SEA

AN101	<i>ABC Islands and Venezuela to Lesser Antilles</i>	118
AN102	<i>ABC Islands and Venezuela to Virgin Islands</i>	118
AN103	<i>Northbound from Venezuela and the ABC Islands</i>	119
AN104	<i>ABC Islands and Venezuela to Panama</i>	120
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AN106	<i>Colombia to Panama</i>	122
AN107	<i>Jamaica to Panama</i>	123
AN108	<i>Jamaica to Central America and Mexico</i>	124

The fact that Venezuela and the offshore islands lie to the south of the hurricane belt, while still being in the trade wind zone, is the main attraction of this area for those who wish to continue cruising during the summer months when the risk of hurricanes hangs over the rest of the Caribbean. Although most of the area is outside the hurricane area, very rarely a rogue storm has been known

to head that way and heavy swells can be experienced when a hurricane is passing further north. The offshore islands of Venezuela and the former Dutch territories of Aruba, Bonaire, and Curaçao are all under the influence of the NE trade winds for most of the year and enjoy similar weather conditions to the more southern islands of the Lesser Antilles.



AN100 Routes in the Caribbean Sea

ROUTES IN THE NORTH ATLANTIC

The weather along continental Venezuela is influenced by the land mass of the South American continent. The NE trade winds have a pronounced easterly component along this coast, particularly from March to June. The season of the strongest winds is December to April when the trades blow NE to E. From June to September, when most people choose to cruise this area, the winds are lighter and more variable. The land mass causes easterly breezes which usually blow in the daytime and die out at night, it often being quite calm at dawn.

The day breeze picks up during the morning and by mid-afternoon can blow quite strongly. From May to November, there are strong southerly squalls which lose their intensity as they head offshore. In the Maracaibo area local afternoon squalls called *chubascos* can blow with up to 50 knots of wind. In the same area strong winds build up in the winter due to the desert heating up and drawing the wind inland off the water. In the autumn hot short blasts called *calderatas* occasionally blow down the mountains.

AN101 ABC Islands and Venezuela to Lesser Antilles

BEST TIME:	April to May, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A, 71 US: 147, 148			
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Cruising Guide to the Leeward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1010 Curaçao 12°09'N, 68°17'W		St Lucia W 14°04'N, 61°00'N	Rodney Bay 14°04.5'N, 60°50.5'W	450

Because of the direction of the prevailing wind it is usually better to work one's way east between the coast and the offlying islands before setting course for one of the Lesser Antilles. The distance between Venezuela's Margarita Island and Grenada, the most southerly of the Lesser Antilles, is only 140 miles. However, rather than beat against the strong wind and equally strong current, it is better to sail as close to the wind as

possible and make for one of the islands further to the north. Towards spring, with a better chance of SE winds, direct passages to more northerly islands are easier to accomplish, but even then it is better to start off from as far east as possible. This is normally easier at the change of seasons when lighter winds make it possible to gain some easting with the help of the engine.

AN102 ABC Islands and Venezuela to Virgin Islands

BEST TIME:	Mid-April to May, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A, 71 US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Virgin Islands, Yachtsman's Guide to the Virgin Islands.</i>			

AN100 ROUTES IN THE CARIBBEAN SEA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN102A				
AN1020 Aruba 12°35'N, 70°05'W		AN1021 Vieques 18°00'N, 65°10'W	Charlotte Amalie 18°20'N, 64°56'W	456
Route AN102B				
AN1020 Aruba	AN1022 Mona 18°00'N, 67°40'W		Charlotte Amalie	528
	AN1023 Borinquén 18°35'N, 67°10'W			

This is a difficult passage during the winter months when the trade winds may have too much north in them. From December to April it is usually easier to reach the Virgins by following the suggestion in AN101 and then sail north in short hops along the chain of Lesser Antilles. For a direct passage (AN102A), it is better to wait until the second half of April, when there is a better chance of having the wind from a more favourable direction. Taking one's departure from WP AN1020 off Aruba's NW point, the direct offshore route leads to WP AN1021 SE of Vieques Island, off Puerto Rico's east coast. If it proves too difficult

to lay such a direct course for the Virgins, it is better to use the Mona Passage by setting course for WP AN1022 and reach the Virgin Islands by sailing along the north coast of Puerto Rico (AN102B). However, should it be impossible to lay a course even for the Mona Passage because of unfavourable winds, landfall can be made further west, along the coast of Hispaniola, from where it should be possible to work one's way east along the coast with the help of a fair inshore current and land breezes. The same can be done along the south coast of Puerto Rico if a detour via Mona Passage is not attractive.

AN103 Northbound from Venezuela and the ABC Islands

BEST TIME:	April to May, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 400			
PILOTS:	BA: 7A, 70, 71 US: 147, 148			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN103A				
AN1030 Aruba 12°35'N, 70°05'W	AN1031 Mona 18°00'N, 67°40'W			
	AN1023 Borinquén 18°35'N, 67°10'W	AN1033 David 32°21'N, 64°38'W	St George's 32°22'N, 64°40'W	1239
Route AN103B				
AN1030 Aruba	AN1031 Mona	AN1036 off Beaufort 34°30'N, 76°40'W	Beaufort	1493
	AN1032 Borinquén	AN1037 Abaco 26°50'N, 76°30'W	Chafleston	1509
			32°44'N, 79°50'W	

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN103C AN1030 Aruba	AN1034 Navassa 18°20'N, 74°45' W AN1035 Maisi 20°00'N, 73°55'W			549

For those who have cruised in this area and do not plan to continue their voyage towards Panama and possibly the Pacific Ocean, but intend to sail either to the USA or Europe, the best season for the north-bound passage is spring, when the winds usually start shifting to the SE. It is best to start this passage from as far east as possible, both Bonaire and Curaçao being good points of departure. If heading for the Mona Passage allowance should be made for the west-setting current during the crossing of the Caribbean Sea. In case one cannot lay Mona Passage and one is swept to the west, it is possible to break the trip on the south coast of Hispaniola and then work one's way east with the help of an easterly current that sets close inshore. As there is a good deal of north in the trades during the early part of winter, the passage should not be attempted too early in the year. The best time to attempt the direct route (AN103A) across the Caribbean Sea is April or May, when there is less of a chance of the winds swinging to the north. If one plans to carry on towards Europe, from Mona Passage a direct course can be set for Bermuda. Boats bound for ports east of New York may also consider such a stop in Bermuda. For the continuation of the route north of Mona Passage see also routes AN87, AN88, and AN102.

For those sailing to ports on the east coast of the

USA, and not interested in a detour to Bermuda, the alternative on leaving Mona Passage is to take a NW route parallel to the Bahamas and reach ports south of Cape Hatteras by staying offshore (AN103B). Alternatively it is possible to take a route which goes to Florida via the Bahamas and then use the Intracoastal Waterway to reach more northern ports (AN103C). If this latter alternative is being considered, it would hardly be worth fighting the elements to reach the Mona Passage when a route through the Windward Passage would be considerably easier to accomplish. In this case from AN1030 a course should be set for WP AN1034 east of Navassa Island, off Hispaniola's SW extremity. From there the route turns north towards the Windward Passage and continues either right through the Bahamas or turns NW through the Old Bahama Channel. No further waypoints are listed for this inshore route to Southern Florida. Boats bound for more northerly ports should refer to route AN93D (page 112) which describes the continuation of this route through the Outer Bahamas and beyond.

Another way to reach Southern Florida is to cross the entire Caribbean Sea and reach the Gulf of Mexico through the Yucatan Channel. In that case, directions for the later part of the passage are given in AN83 (page 99).

AN104 ABC Islands and Venezuela to Panama

BEST TIME:	April to May, November to December
TROPICAL STORMS:	June to November
CHARTS:	BA: 4402 US: 402
PILOTS:	BA: 7A US: 148
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook</i>

AN100 ROUTES IN THE CARIBBEAN SEA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1040 Aruba 12°35'N, 70°05'W	AN1041 Gallinas 13°55'N, 71°38'W			
	AN1042 Manzanillo 9°47'N, 79°32'W	AN1043 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	686

A large number of westbound boats stop in Venezuela or the offlying islands before continuing the voyage towards Panama. Although this route is just outside the region affected by hurricanes, it is better to plan this passage for the intermediate seasons when more pleasant conditions can be expected.

The best point of departure for Panama is Aruba, from where a course should be steered to pass rapidly into deeper waters. On leaving Aruba, the shallow bank to its west should be avoided as the west-setting offshore current combined with an east-setting inshore current can produce rough and confused seas. The recommended course is outside the 1000 fathom line, which avoids the rough seas that occur in the shallower waters closer to land.

From WP AN1040 outside Oranjestad, the course should be set for WP AN1041 28 miles north of Punta Gallinas on Guajira Peninsula just outside the 1000 fathom line. From there, a direct course can be set for WP AN1042 10 miles N of Punta Manzanillo and 30 miles from the Panama Canal entrance. Then the course should be altered for WP AN1043 at the landfall buoy off the entrance into the port of Cristobal Colon. Traffic Control should be contacted on VHF channel 12. Traffic lights control the passage through the breakwaters and small boats are advised to keep as close as possible to the sides. See page 489 for detailed instructions concerning entry and transit procedure for the Panama Canal.

AN105 ABC Islands and Venezuela to Colombia

BEST TIME:	April to May, November to December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A US: 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1050 Aruba 12°35'N, 70°05'W	AN1051 Gallinas 13°55'N, 71°38'W			
	AN1052 12°23'N, 73°12'W			
	AN1053 11°10'N, 75°25'W	AN1054 off Cartagena 10°25'N, 75°38'W	Cartagena 10°25'N, 75°32'W	453

After being avoided for many years by cruising boats, Colombia is again being included in cruising plans and a large number of visiting boats are stopping in Colombia, especially in the historic city of Cartagena. Directions for sailing to Colombia

are similar to routes AN73 and AN74 (pages 88-9). Boats leaving from Aruba should set an initial course for WP AN1051 28 miles north of Punta Gallinas on Guajira Peninsula. From there the recommended route leads to WPs AN1052 and

ROUTES IN THE NORTH ATLANTIC

AN1053. Both points are just outside the 1000 fathom line, although strong winds and high seas can be expected on this route, especially during the winter months. From waypoint AN1053 the course can be altered for WP AN1054 in the approaches to the port of Cartagena. The area should be approached with caution because of the dangers in the approaches. Also avoid the silted Boca Grande as the dredged entrance is Boca Chica, identified by a landfall buoy, close to the end of Isla de Tierra Bomba. An 8 mile long channel leads northward through the shallow Bahía de Cartagena to the commercial port and two marinas.

As on most other routes in the Caribbean Sea, best conditions are encountered in either April-May, or November. Because the route crosses an area known for its rough seas, Aruba should not be left in winds over 30 knots, or if there is a forecast of strong winds to come. The current will be in one's favour almost all the way to Cartagena, with sets of 1.5 to 2 knots, although a counter-current may make itself felt in the last 20-30 miles to Cartagena. The area around Cartagena is affected by a violent southerly wind called *chocoso*, which can attain 50 or even 60 knots.

AN106 Colombia to Panama

BEST TIME:	April to May, November to December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A US: 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1060 off Cartagena 10°25'N, 75°38'W	AN1061 Manzanillo W 9°48'N, 79°35'W	AN1062 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	271

Most boats take their leave from Colombia in Cartagena, from where a direct course leads across the Gulf of Darien to the Panama Canal entrance. From outside Cartagena, at WP AN1060 a course can be set for WP AN1061, 10 miles N of Punta Manzanillo. The course can then be altered for WP AN1062, the landfall buoy at the entrance to the Panama Canal. The above course passes outside the San Blas Islands and stays in deeper water to avoid the rougher seas further inshore. The voyage can be interrupted in the San Blas Islands,

which belong to Panama and where one can clear and obtain the compulsory cruising permit at Porvenir (9°34'N, 78°57'W).

The area to be crossed is not subjected to tropical storms, although the effect will be felt if a hurricane occurs further north. During winter months passages along this route will be affected by the large swell caused by the strong trade winds piling up the water in this corner of the Caribbean.

AN107 *Jamaica to Panama*

BEST TIME:	April to May, November to December
TROPICAL STORMS:	June to November
CHARTS:	BA: 4402 US: 402
PILOTS:	BA: 7A, 70 US: 147, 148
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN107A				
AN1071 Plumb 17°45'N, 76°50'W	AN1072 Pedro 16°20'N, 77°10'W	AN1073 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	536
Route AN107B				
AN1074 Negril 18°18'N, 78°30'W	AN1075 Rosalind 16°00'N, 80°10'W AN1076 Sueno 14°20'N, 80°45'W AN1077 Roncador 13°30'N, 79°40'W	AN1073 Panama	Cristobal	604

A direct route (AN107A) leads to Panama from ports in the eastern part of Jamaica. The winds will be light while in the lee of the island, but outside Jamaica's wind shadow they will rapidly become strong with large seas. The strong winds and high seas experienced on this route for most of the year, combined with a strong west-setting current, call for accurate navigation as the route passes dangerously close to a number of offshore banks. As the direct route to Panama leads close to the New and Pedro Banks, sufficient allowance for leeway should be made when setting a course to windward of them. The area should also be avoided because of the breaking seas that occur over the shallows. Both these banks can be very dangerous in heavy weather and their vicinity should be avoided. Another hazard is the many fishing boats, some of which do not show lights, as well as the buoyed nets set on the banks.

From WP AN1071 south of Plumb Point, in the approaches to Kingston, a course should be set for WP AN1072 to pass well to the east of the various banks. If leaving from one of the ports on the NE coast of Jamaica, a course should be shaped around the east of the island and you should make for the same waypoint AN1072. From there it is a clear run to WP AN1073, the landfall

buoy in the approaches to the Panama Canal.

For boats leaving from ports in the west of Jamaica, the route has to avoid a series of dangers, and as some of their positions, as depicted on the charts, are not entirely accurate, the area should be approached with great caution. Having passed Point Negril, at the western extremity of Jamaica, from WP AN1074 set course for WP AN1075 to pass between Rosalind and Serranilla Banks. The course is then altered for WP AN1076 halfway between Sueno and Serrana Banks, both of which have lights. The next WP AN1077 is 20 miles east of Roncador Bank, from where the course can be altered for WP AN1073 at the entrance into the port of Cristobal. Boats approaching the breakwaters at the entrance into the Panama Canal should call Traffic Control on VHF channel 12. Traffic lights regulate the passage between the breakwaters, but small boats may pass if they keep close to the side, both when passing through the breakwaters and in the shipping channels.

Boats going straight to the San Blas Islands should be aware of the poor visibility in their vicinity as low cloud often obscures the mainland and land may not become visible until a few miles away. The official port of entry is Porvenir (9°34'N, 78°57'W).

ROUTES IN THE NORTH ATLANTIC

AN1053. Both points are just outside the 1000 fathom line, although strong winds and high seas can be expected on this route, especially during the winter months. From waypoint AN1053 the course can be altered for WP AN1054 in the approaches to the port of Cartagena. The area should be approached with caution because of the dangers in the approaches. Also avoid the silted Boca Grande as the dredged entrance is Boca Chica, identified by a landfall buoy, close to the end of Isla de Tierra Bomba. An 8 mile long channel leads northward through the shallow Bahía de Cartagena to the commercial port and two marinas.

As on most other routes in the Caribbean Sea, best conditions are encountered in either April-May, or November. Because the route crosses an area known for its rough seas, Aruba should not be left in winds over 30 knots, or if there is a forecast of strong winds to come. The current will be in one's favour almost all the way to Cartagena, with sets of 1.5 to 2 knots, although a counter-current may make itself felt in the last 20-30 miles to Cartagena. The area around Cartagena is affected by a violent southerly wind called *chocosono*, which can attain 50 or even 60 knots.

AN106 Colombia to Panama

BEST TIME:	April to May, November to December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4402 US: 402			
PILOTS:	BA: 7A US: 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1060 off Cartagena 10°25'N, 75°38'W	AN1061 Manzanillo 9°48'N, 79°35'W	AN1062 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	271

Most boats take their leave from Colombia in Cartagena, from where a direct course leads across the Gulf of Darien to the Panama Canal entrance. From outside Cartagena, at WP AN1060 a course can be set for WP AN1061, 10 miles N of Punta Manzanillo. The course can then be altered for WP AN1062, the landfall buoy at the entrance to the Panama Canal. The above course passes outside the San Blas Islands and stays in deeper water to avoid the rougher seas further inshore. The voyage can be interrupted in the San Blas Islands,

which belong to Panama and where one can clear and obtain the compulsory cruising permit at Porvenir (9°34'N, 78°57'W).

The area to be crossed is not subjected to tropical storms, although the effect will be felt if a hurricane occurs further north. During winter months passages along this route will be affected by the large swell caused by the strong trade winds piling up the water in this corner of the Caribbean.

AN107 Jamaica to Panama

BEST TIME:	April to May, November to December
TROPICAL STORMS:	June to November
CHARTS:	BA: 4402 US: 402
PILOTS:	BA: 7A, 70 US: 147, 148
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN107A				
AN1071 Plumb 17°45'N, 76°50'W	AN1072 Pedro 16°20'N, 77°10'W	AN1073 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	536
Route AN107B				
AN1074 Negril 18°18'N, 78°30'W	AN1075 Rosalind 16°00'N, 80°10'W AN1076 Sueno 14°20'N, 80°45'W AN1077 Roncador 13°30'N, 79°40'W	AN1073 Panama	Cristobal	604

A direct route (AN107A) leads to Panama from ports in the eastern part of Jamaica. The winds will be light while in the lee of the island, but outside Jamaica's wind shadow they will rapidly become strong with large seas. The strong winds and high seas experienced on this route for most of the year, combined with a strong west-setting current, call for accurate navigation as the route passes dangerously close to a number of offshore banks. As the direct route to Panama leads close to the New and Pedro Banks, sufficient allowance for leeway should be made when setting a course to windward of them. The area should also be avoided because of the breaking seas that occur over the shallows. Both these banks can be very dangerous in heavy weather and their vicinity should be avoided. Another hazard is the many fishing boats, some of which do not show lights, as well as the buoyed nets set on the banks.

From WP AN1071 south of Plumb Point, in the approaches to Kingston, a course should be set for WP AN1072 to pass well to the east of the various banks. If leaving from one of the ports on the NE coast of Jamaica, a course should be shaped around the east of the island and you should make for the same waypoint AN1072. From there it is a clear run to WP AN1073, the landfall

buoy in the approaches to the Panama Canal.

For boats leaving from ports in the west of Jamaica, the route has to avoid a series of dangers, and as some of their positions, as depicted on the charts, are not entirely accurate, the area should be approached with great caution. Having passed Point Negril, at the western extremity of Jamaica, from WP AN1074 set course for WP AN1075 to pass between Rosalind and Serranilla Banks. The course is then altered for WP AN1076 halfway between Sueno and Serrana Banks, both of which have lights. The next WP AN1077 is 20 miles east of Roncador Bank, from where the course can be altered for WP AN1073 at the entrance into the port of Cristobal. Boats approaching the breakwaters at the entrance into the Panama Canal should call Traffic Control on VHF channel 12. Traffic lights regulate the passage between the breakwaters, but small boats may pass if they keep close to the side, both when passing through the breakwaters and in the shipping channels.

Boats going straight to the San Blas Islands should be aware of the poor visibility in their vicinity as low cloud often obscures the mainland and land may not become visible until a few miles away. The official port of entry is Porvenir (9°34'N, 78°57'W).

AN108 Jamaica to Central America and Mexico

BEST TIME:	April to May, November to December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4400 US: 400			
PILOTS:	BA: 69A, 70 US: 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Northwest Caribbean, Cruising Guide to Belize and Mexico's Caribbean Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN108A				
Montego Bay	AN1081 Swan		Guanaja	471
18°28'N, 77°56'W	16°55'N, 84°00'W		16°28'N, 85°54'W	
			Belize City	600
			17°30'N, 88°10'W	
Route AN108B				
Montego Bay	AN1082 Grand Cayman		AN1083 Yucatan SE	459
	19°25'N, 81°05'W		21°50'N, 85°10'W	
Route AN108C				
Montego Bay	AN1084 Sur		Mujeres	527
	21°10'N, 86°42'W		21°15'N, 86°45.5'W	

Westbound routes from Jamaica benefit from both good winds and a favourable current during most of the year. The best time for passages along these routes is the transition months of April–May, before the hurricane season, or November before the onset of winter northers, which may be felt west of Jamaica and can seriously affect weather in the Gulf of Mexico and, to a smaller extent, further south.

Boats leaving from ports on either side of Jamaica and bound for the Bay of Islands in Honduras (AN108A) should set course for WP AN1081 south of Swan Island. A convenient place to clear into Honduras is at Guanaja. The route to Belize also passes right by Swan Island. To reach Belize City

one has to use one of several passes through the reefs, Eastern Channel being the main shipping channel.

The route to the Gulf of Mexico passes close to the Cayman Islands, where the voyage may be interrupted at the capital Georgetown on Grand Cayman. From there the route continues towards the Yucatan Channel and WP AN1083 off Cuba's Cape San Antonio. Boats bound for ports in the Gulf of Mexico can wait for favourable conditions to cross the Gulf at Isla Mujeres, an official port of entry into Mexico, in which case a course should be set for WP AN1084, off that island's south point, Punta Sur.

AN110 ROUTES FROM THE BAHAMAS AND FLORIDA

AN111 Northbound from the Bahamas and Florida	126
AN112 Bahamas to Bermuda	127
AN113 Bahamas to the Eastern Caribbean	128
AN114 Bahamas to Panama and Central America	129
AN115 Florida to Bermuda	130
AN116 Florida to the Eastern Caribbean	130
AN117 Southbound from Florida	131

AN110 ROUTES FROM THE BAHAMAS AND FLORIDA



AN110 Routes from the Bahamas and Florida

The low lying islands of the Bahamas and their associated banks and reef areas offer a wide choice of anchorages, especially to shallow drafted craft. Although cruised by a large number of boats, few arrive in the Bahamas at the end of a long offshore passage since most boats reach the islands in short hops, mostly from Florida.

The prevailing winds are from NE to SE with the most northern islands lying on the edge of the trade wind belt. As the islands are low there is no regular land breeze. Northers interrupt the NE trades with regularity during the winter and typically start with the wind veering to the S and SW. When the cold front arrives, the wind suddenly shifts to the NW then N and usually blows itself out in the NE. After a while, the normal winds take over from more or less their usual direction. In mid-winter, the cycle can take several days, in spring only 24 hours. Most northers are dry, although on occasions they can be accompanied by rain and thunder squalls. However, they very

rarely bring winds over 30 knots and mainly the more northerly Bahamas are the most affected by these northers.

Summer weather starts around May, after the last norther has blown itself out, and lasts until November. The trades are more SE in the summer and most winds during these months are from E or SE. During August and September there can be periods of calms, especially at night. The balmy summer weather can be interrupted occasionally by an Easterly Wave, a trough of low pressure found in the trade wind belt. This is usually accompanied by showers and high humidity. Sometimes Easterly Waves can degenerate into tropical depressions and even hurricanes. May to October are the wettest months and rainy squalls occur during this season.

In Florida the prevailing winds are E and SE, but they become more variable higher up the coast, tending to be more SW. Thunderstorms are more common in summer, although there are few

ROUTES IN THE NORTH ATLANTIC

gales. However, in this season hurricanes can affect the eastern seaboard over the whole region, those arising in the Atlantic usually approaching from the E and SE. Tropical storms generated in the Caribbean Sea come from the south and are more frequent in the months of September and October. The whole area is affected by weather conditions on the North American land mass and the semipermanent anticyclone stationed there. As the pressure rises, it develops into a norther, a N and NW flow of cold air that blows hard for several days. During the winter, gales occur, as depressions move across the southern states eastward into the

Atlantic. North of Florida these fronts bring strong SW gales, the wind veering W or NW behind the depression.

The hurricane season is from June to November, although usually in June and July hurricanes pass to the south of the Bahamas. The most dangerous months are August to October, but hurricanes have been recorded as early as May and as late as December. The Bahamas have one of the highest frequencies of hurricanes in the North Atlantic, as they are in the path of hurricanes generated in both the Atlantic and the Caribbean.

AN111 Northbound from the Bahamas and Florida

BEST TIME:	May to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4403 US: 403			
PILOTS:	BA: 68, 69, 70 US: 140, 147			
CRUISING GUIDES:	<i>Coastal Cruising Guide to the Atlantic Coast.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN111A				
AN1111 Providence 25°50'N, 76°50'W	AN1112 Abaco NE 27°00'N, 76°50'W	AN1113 off Beaufort 34°30'N, 76°40'W	Beaufort 34°43'N, 76°40'W	533
		AN1114 Chesapeake 36°45'N, 75°45'W		658
		AN1115 Brenton 41°24'N, 71°16'W	Newport 41°29'N, 71°20'W	982
Route AN111B				
AN1111 Providence	AN1112 Abaco NE	AN1116 off Charleston 32°40'N, 79°40'W	Charleston 32°44'N, 79°50'W	450

Although there is a steady movement of boats between the Bahamas and Florida virtually throughout the year, offshore passages to more northern states are restricted to spring and early summer. This is the time when boats, which have passed the winter in the tropics, return home. However, even at the best of times, some people prefer to forgo the attractions of a quick offshore passage and instead take the Intracoastal Waterway.

The best time for an offshore passage, especially for ports north of the Chesapeake Bay, is in spring and early summer, when the chances of

favourable winds are highest and there is little or no danger of either late northers or early hurricanes. The latter danger increases with the approach of summer, but even then offshore passages are feasible provided one leaves with a favourable long term forecast. A stop in Bermuda is not really recommended, except for boats bound for Canadian ports.

Because of the favourable set of the Gulf Stream, the route should use this advantage to the maximum. However, if there is a likelihood of strong northerly winds, it is better to forgo it and wait for better conditions, if leaving from a port

AN110 ROUTES FROM THE BAHAMAS AND FLORIDA

in South Florida, or sail a more offshore route, if leaving from the Bahamas or Northern Florida.

For destinations south of Cape Hatteras, boats leaving from Florida have little choice but to sail a course roughly parallel to the coast. Boats taking an offshore route from the Bahamas, from WP AN1111, in the NE Providence Channel, should set an initial course for WP AN1112, NE of Great Abaco Island. From that point, boats bound for more northern destinations can sail a direct offshore route (AN111A). Boats bound for southern ports

may continue in a NW direction before altering course for the port of destination (AN111B). To take full advantage of the Gulf Stream, especially if one's destination is in North Florida or South Carolina, that initial course may have to continue in a NW direction so as to reach the area of the strongest current closer to the Florida coast. Latest information on the location and strength of the Gulf Stream can be obtained from NOAA Miami, who issue regular Gulf Stream flow charts, and can be contacted on Tel. (305) 665 4707.

AN112 Bahamas to Bermuda

BEST TIME:	May to June				
TROPICAL STORMS:	June to November				
CHARTS:	BA: 4403				
	US: 403				
PILOTS:	BA: 70				
	US: 140, 147				
CRUISING GUIDES:	<i>Yachting Guide to Bermuda.</i>				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
AN1121 Providence 25°50'N, 76°50'W	AN1122 Bermuda SW 32°12'N, 64°50'W	AN1123 David 32°21'N, 64°38'W	St George's 32°22'N, 64°40'W	760	

Similar directions apply as for route AN115, which is used by boats sailing from Florida to Bermuda. The recommended time for a passage from the Bahamas is late spring or early summer, when weather conditions on this route will be better than at any other time. If leaving from the Northern Bahamas a NNE course can be easily followed with the help of the prevailing winds and the north setting Gulf Stream. During the summer months the winds north of the Bahamas are usually from the SE, so it is sometimes possible to sail a direct course from the Bahamas to Bermuda right through the Horse Latitudes. Light winds are sometimes experienced along this route and gales are very rare at the recommended time of year. Although the

hurricane season officially starts in Bermuda on 1st June, hurricanes rarely pass that way before the end of July and even when they do, their path is to the west of Bermuda nearer to the American mainland.

If the NE Providence Channel is used as a point of departure from the Bahamas, from WP AN1121 a direct course can be set for WP AN1122 south of Gibbs Hill, at the SW point of Bermuda. From there the course runs parallel to the island to WP AN1123 off St David's Head. Town Cut leads into St George's Harbour, the official port of entry into Bermuda. The narrow cut, although well buoyed and lit, should not be attempted at night by those unfamiliar with the area.

AN113 Bahamas to the Eastern Caribbean

BEST TIME:	Mid-April to June, November to mid-December
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400 US: 400
PILOTS:	BA: 70, 71 US: 147
CRUISING GUIDES:	<i>Gentleman's Guide to Passages South, Yachtsman's Guide to the Bahamas, Cruising Guide to the Leeward Islands.</i>

Having reached the Southern Bahamas either by one of the offshore routes or through the islands, the subsequent leg to the Virgins will be to windward for most of the way and also for most of the year. The route has been called the 'thorny path', and for very good reason. The best time to undertake it is at the change of seasons, when the trade winds are lighter and the risk of hurricanes not so great. Another matter of concern, apart from the contrary winds, are the strong currents that occur in this area. These, combined with the numerous reefs, low islands, and few lights call for accurate navigation at all times.

Those who are determined to sail offshore to either the Virgins or Lesser Antilles, and are confident that their boat is capable of it, should gain the open ocean by the quickest way and set an easterly course as soon as possible. This avoids the strong NW current setting parallel to the Bahamas. If the winds allow it, the due east course should be held until the longitude of the port of destination is reached and course is altered to the south.

An offshore passage from the Southern Bahamas to the Virgins, either direct (AN113A) or via Puerto Rico, can regain the ocean through the Crooked Island, Mayaguana, Caicos, or Turks Passages. The initial course should lead well clear of all dangers, including the banks east of Grand Turk. A variation of such an offshore route is described in AN116. Because of contrary wind and current, such a passage would be very difficult; unless the winds are northerly or light, an alternative route (AN113B) may have to be considered. This means staying south of Caicos and sailing along the north coasts of Hispaniola and Puerto Rico. Even when the trade winds are strong these high islands provide some lee and light coastal breezes.

Directions for boats sailing to one of the northern islands in the Lesser Antilles are very similar.

However, those whose destination lies further south, should consider taking an offshore route from the Mona Passage onwards. Having sailed along the north coast of Hispaniola as far as Samana, at Mona Passage the route enters the Caribbean Sea. At the beginning of winter, NE winds ought to make it possible to reach some of the more southern islands, such as Grenada or Trinidad, on one tack. This route is not recommended towards spring when the winds become SE.

An alternative chosen every year by numerous sailors is to sail the distance in short stages. The best tactics to be deployed are described in *The Gentleman's Guide to Passages South*, which is dedicated to this very route. The advice given in that book, and also by others who have sailed that difficult route, is to take one's time and watch the weather carefully. Even in winter, when strong easterlies are the norm, the frequent fronts provide a respite of calms and light winds. The recommended tactic is to sail ahead of such fronts and then run for shelter as the front approaches. The weather is usually uncomfortable for 12 hours before a frontal passage and for about 24 hours afterwards.

As the voyage may be interrupted in the Turks and Caicos Islands, entry formalities in those islands can be completed at the following ports: Sapodilla Bay (Providenciales, 21°44'N, 72°17'W), Cockburn Harbour (South Caicos, 21°30'N, 71°31'W), and Cockburn Town (Grand Turk, 21°28'N, 71°06'W). Convenient ports of entry on the north coast of the Dominican Republic are Puerto Plata (19°49'N, 70°42'W), Manzanillo Bay (19°43'N, 71°45'W), and Samana (19°12'N, 69°26'W). The official port of entry on Puerto Rico's west coast is Mayaguez (18°12'N, 67°07'W) and not Boqueron. Although a US territory, US boats must clear into Mayaguez like everyone else. An additional suggestion for those sailing along the south coast of Puerto Rico, especially at night, is

AN114 Bahamas to Panama and Central America

BEST TIME:	April to May, November to December
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400 US: 400
PILOTS:	BA: 7A, 70 US: 147, 148
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Cruising Guide to the Northwest Caribbean.</i>

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN114				
AN1140 Matthew Town 20°56'N, 78°42'W	AN1141 Maisi N 20°23'N, 74°05'W			
	AN1142 Navassa 18°25'N, 75°16'W			
	AN1143 Morant 17°15'N, 75°32'W	AN1144 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	786

to avoid the numerous fish traps.

Regardless of the Bahamian port of departure, all variations of this route converge on the Windward Passage. Matthew Town, the main settlement on Great Inagua Island, is a good place to stop before negotiating the Windward Passage and is used as a hypothetical departure point. A course for WP AN1141, eight miles NE of Cuba's Cape Maisi, takes one into the southbound lane of the traffic separation zone which operates off that cape. Having negotiated the Windward Passage, the route to Panama can pass on either side of Navassa Island, but its western side is to be preferred in strong winds as seas break on the shallows off the SW extremity of Hispaniola. A course should be set for WP AN1142, 10 miles west of Navassa Island. If a stop in Jamaica is not intended, the course leads to WP AN1143 about 20 miles SE of Morant Cays. From there, the course should be altered for WP AN1144, the seabuoy off the Panama Canal entrance. The recommended route across the Caribbean Sea stays clear of the various banks and shallows. Allowance should be made for leeway if passing close to Pedro and New Banks as the current sets towards them.

The winds are favourable along this route

throughout the year, although both the hurricane season and the strong trade winds of winter should be avoided. In the latter case boisterous sailing conditions can be predicted with certainty from January to March when the trades are at their strongest. The extent of the hurricane season is less precisely defined and the actual months when there is no danger of hurricanes are the same winter months from January to April. The intermediate months have a much lower frequency of tropical storms, but hurricanes have been recorded even as late as December, making passages through the Caribbean more dangerous at the end than at the beginning of the season. This is the reason why southbound passages should be planned for late winter or early spring.

For boats bound for Central American destinations, whether in Belize, Guatemala, or Honduras, the westbound route from the Windward Passage runs between Cuba and Jamaica, with possible stops in either of those countries as well as Grand Cayman, which is also close to the direct route. Details for the route westward of Jamaica are given in route AN108 (page 124). Boats bound for the south coast of Cuba can clear in at Santiago de Cuba (19°59'N, 75°53'W).

AN115 Florida to Bermuda

BEST TIME:	May to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4400 US: 400			
PILOTS:	BA: 71 US: 140, 147			
CRUISING GUIDES:	<i>Yachtsman's Guide to Bermuda.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1150 Lauderdale 26°05'N, 80°06'W	AN1151 Bahama 27°40'N, 79°00'W	AN1152 Bermuda SW 32°12'N, 64°50'W	AN1153 David St George's 32°22'N, 64°40'W	800

This passage is made mostly in May and June, when the chances of favourable conditions are better than at any other time of the year. The timing suits most people's plans as this route is sailed mostly by boats that have spent the winter in Florida and are using Bermuda as a convenient point before continuing towards the Azores, Northern Europe, or the Mediterranean. The prevailing winds in early summer are SW which, added to the favourable Gulf Stream, can make for a speedy start to the passage. The Miami office of NOAA issues regular Gulf Stream flow charts and the latest information on this can be obtained by telephoning (305) 665 4707. Provided there is no forecast of a late norther, the Gulf Stream can be ridden for a while, but sooner rather than later the direct course for Bermuda must take priority. If leaving from ports in Southern Florida, Grand Bahama Island and the reefs and islets to the north of it should be passed at a safe distance before the course is altered for Bermuda. Having reached WP AN1151 off Grand Bahama a direct course can be set for WP AN1152,

south of Gibbs Hill, at the SW point of Bermuda. From there the course runs parallel to the island to WP AN1153 off St David's Head. Town Cut leads into St George's Harbour, the official port of entry into Bermuda. The narrow cut, although well buoyed and lit, should not be attempted at night by those unfamiliar with the area.

The SW winds experienced at the start of this passage may become SE further offshore and occasionally these can last as far as Bermuda. Weather forecasts should be listened to regularly during this passage as weather systems can change rapidly in the areas crossed by this route. If the passage is made early in the season, there is a real possibility of encountering strong northerly winds, in which case one should try to move out of the Gulf Stream as quickly as possible. Later in the season there is the danger of tropical storms and, even if they do not develop into fully fledged hurricanes, depressions which form over the Bahamas usually bring squally weather and rough seas.

AN116 Florida to the Eastern Caribbean

BEST TIME:	May, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4400 US: 400			
PILOTS:	BA: 71 US: 140, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Cruising Guide to the Leeward Islands, Sailor's Guide to the Windward Islands.</i>			

AN110 ROUTES FROM THE BAHAMAS AND FLORIDA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1161 Providence 25°50'N, 76°50'W	AN1162 Optimist 25°00'N, 65°00'W	AN1164 Culebrita 18°26'N, 65°10'W	Charlotte Amalie 18°23'N, 64°56'W	999
AN1161 Providence	AN1163 Ideal 25°00'N, 61°30'W			
	AN1165 Barbuda 17°30'N, 61°30'W	AN1166 Antigua E 17°00'N, 61°38'W	English Harbour 17°00'N, 61°45'W	1320

The timing for a direct passage from Florida to the Eastern Caribbean is critical as a summer voyage carries the risk of hurricanes and a winter voyage that of contrary easterly winds as well as northerly storms. Therefore the best time appears to be November, when the danger of hurricanes is low and winter gales are still rare.

The offshore route has the advantage that it can also be sailed in winter, although it has the distinct disadvantage of strong contrary winds once the trade winds are met. The offshore route is more attractive to boats starting from Northern Florida as they can set a direct course, which stays clear of the Bahamas. Boats leaving from ports in Southern Florida can join that same offshore route by taking the NW and NE Providence Channels. In both cases the recommended practice is to make one's easting along latitude 25°N and only turn south after meridian 65°N has been crossed. In November and December the trade winds are moderate NE, but become E and stronger after January, so even this offshore route should not be

sailed too late in winter. Having reached the open sea through the NE Providence Channel, from WP AN1161, the tack will be sailed which makes best easting to WP AN1162, if bound for the Virgin Islands, or AN1163, if bound for one of the ports in the Lesser Antilles. From WP AN1162, the course is altered for WP AN1164, so as to make landfall close to the island of Culebrita and approach St Thomas from the north and west. An alternative way of approaching the Virgin Islands from the NE is described in route AN127 (page 141). Boats bound for Antigua should set a course from AN1163 for AN1165, so as to approach the island from windward. Landfall will be made at WP AN1166, east of English Harbour.

An alternative way to reach the Eastern Caribbean is by the inter-island route that threads its way through the Bahamas, Turks and Caicos, Puerto Rico and beyond, an intricate and time consuming route that still does not avoid the strong headwinds which await one at the end. This alternative is discussed in detail in route AN113.

AN117 Southbound from Florida

BEST TIME:	December to May
TROPICAL STORMS:	June to November
CHARTS:	BA: 4400 US: 400
PILOTS:	BA: 71 US: 140, 147, 148
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean.</i>

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN117A				
AN1170 Key West 24°33'N, 81°48'W	AN1171 Tortuga 24°25'N, 83°00'W	AN1172 Yucatan NW 21°18'N, 86°46'W	Mujeres 21°15'N, 86°45.5'W	349
			Belize City 17°30'N, 88°10'W	588
			Livingston 15°49'N, 88°45'W	694
			Guanaja 16°28'N, 85°54'W	640
Route AN117B				
AN1170 Key West	AN1173 Antonio 21°50'N, 85°05'W	AN1174 Serrana 14°20'N, 80°40'W	AN1175 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W
				1062
Route AN117C				
AN1176 Augustine 29°55'N, 81°16'W	AN1177 26°00'N, 74°40'W	AN1178 Mira 22°05'N, 74°24'W	AN1179 Maisí N 20°23'N, 74°05'W	739

Many American sailors use Florida as a convenient springboard to reach destinations south and while this may work out well for some, for others it may prove to be counterproductive. Mainly for those sailing from northern states, who are bound for Central America, getting there via the Bahamas and Windward Passage makes more sense than fighting one's way past Florida and across the Gulf of Mexico.

In the summer the prevailing winds in Florida are from the SE and the weather is rainy with heavy squalls and calm periods. The Gulf of Mexico is one of the areas most affected by hurricanes between June and November, not only by those forming in the Gulf itself but also by those travelling from other areas of the Caribbean. From September to November hurricanes spawned in the Western Caribbean are most likely to pass through the Yucatan Channel and then curve around north and east towards Cuba and Florida. Tornadoes, waterspouts, and squalls are also a feature of the hurricane season.

The greatest dilemma faced by anyone planning a voyage from Florida to any of the countries bordering on the Caribbean Sea is whether to sail east

or west of Cuba. The situation will undoubtedly change once that country's doors are fully opened to cruising boats and visiting sailors will be able to enjoy its many attractions. In the meantime, boats setting off from Northern Florida are probably better off sailing through the Bahamas and Windward Passage to reach Central America. The answer is not so simple for boats leaving from Southern Florida, for which both alternatives have certain attractions. Although Mexico itself is more easily reached by a direct route through the Yucatan Channel, a voyage to Belize, Guatemala, or Honduras by the same route is shorter but tougher, mainly because of the contrary current. In contrast, the roundabout route via the Bahamas and Windward Passage is considerably longer, but benefits from mostly favourable winds and current, and also offers the chance of several interesting stops en route.

The time of year when the passage is made will have a major bearing on the choice of route. In winter, when strong E and NE winds can be expected, a direct route through the Yucatan Channel is to be preferred, not just for destinations in Guatemala, Belize, or Honduras, but even as far

as Panama. However, this may mean waiting until favourable conditions set in. In winter, the recommended time to leave is immediately after a norther has blown itself out. The best time for a southbound passage, at least as far south as the Yucatan Peninsula, is from mid-April to the end of June. At this time, winds may be light and one has to be prepared to motor. To avoid the full strength of the current, which can be as high as 2.5 knots, it is recommended to either sail a route which stays close to the Dry Tortugas, or cross over towards Cuba and follow that country's NW coast, but making sure one does not stray into its territorial waters. A good departure point from the US is Key West. The northern route (AN117A) stays just outside the 100 fathom line to WP AN1171, 14 miles south of the Dry Tortugas. From there a direct course can be set to pass through the Yucatan Channel to WP AN1172, two miles north of Isla Mujeres, a convenient place to clear into Mexico. From there one is in easy reach of the best cruising grounds in Central America, whether in Belize, Guatemala, or Honduras.

If not intending to stop in Mexico or carry on to Belize and Guatemala, it is probably better to cross over from Key West to the Cuban side (AN117B) and sail along its coast to WP AN1173, eight miles off Cape San Antonio. A weak but favourable countercurrent may be experienced along Cuba's north coast. Having passed through the Yucatan Channel, a direct course leads to WP AN1174 between Sueno and Serrana Banks, both of which have lights. From there, course is altered

for WP AN1175, the landfall buoy marking the entrance into the Panama Canal.

Increasingly boats stop in Cuba and a convenient place to clear into that country is Marina Hemingway, west of Havana. The marina is sometimes confusingly referred to as Barlovento and the easiest way to find the entrance through the reef is to identify the outer marker, whose GPS coordinates are reported as 23°05.3'N, 82°29.3'W. The entrance should not be attempted in strong onshore winds when big rollers break all around the narrow pass through the reef. Guarda Frontera should be contacted on VHF channel 16 when entering Cuban territorial waters. Hemingway Marina monitors channel 72.

At the change of seasons, or in early summer, a route via the Windward Passage (AN117C) may be more attractive than the one through the Yucatan Channel described above. From a port in North Florida, such as St Augustine (AN1176), the Windward Passage is best reached by sailing on a SE course which avoids the Abacos to WP AN1177. There the route turns south to pass west of San Salvador, Crooked and Acklins Island to WP AN1178, in Mira-Por-Vos Passage. A slight course alteration will be needed to reach WP AN1179, eight miles NE of Cuba's Cape Maisi. From there on, the route south of the Windward Passage is described in AN114. The southbound route across the Caribbean Sea is also joined in the Windward Passage by boats coming from ports in South Florida, either via the Bahamas or through the Old Bahama Channel.

AN120 ROUTES FROM BERMUDA

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AN122 <i>Bermuda to Canada</i>	136
AN123 <i>Bermuda to Northern Europe</i>	137
AN124 <i>Bermuda to Gibraltar</i>	137
AN125 <i>Bermuda to Azores</i>	138
AN126 <i>Bermuda to Lesser Antilles</i>	140
AN127 <i>Bermuda to Virgin Islands</i>	141

Bermuda occupies such a strategic position in the Western Atlantic that even those planning not to stop there find it difficult to bypass this attractive island. Although good protection is assured in its well sheltered harbours, the approaches to Bermuda are dangerous and a brief look at the chart

will explain why this cluster of islands surrounded by reefs was first settled by shipwrecked Englishmen on their way to America. In more recent times a shipping exclusion zone has been declared around Bermuda's shores, and ships are warned to keep their distance unless they intend

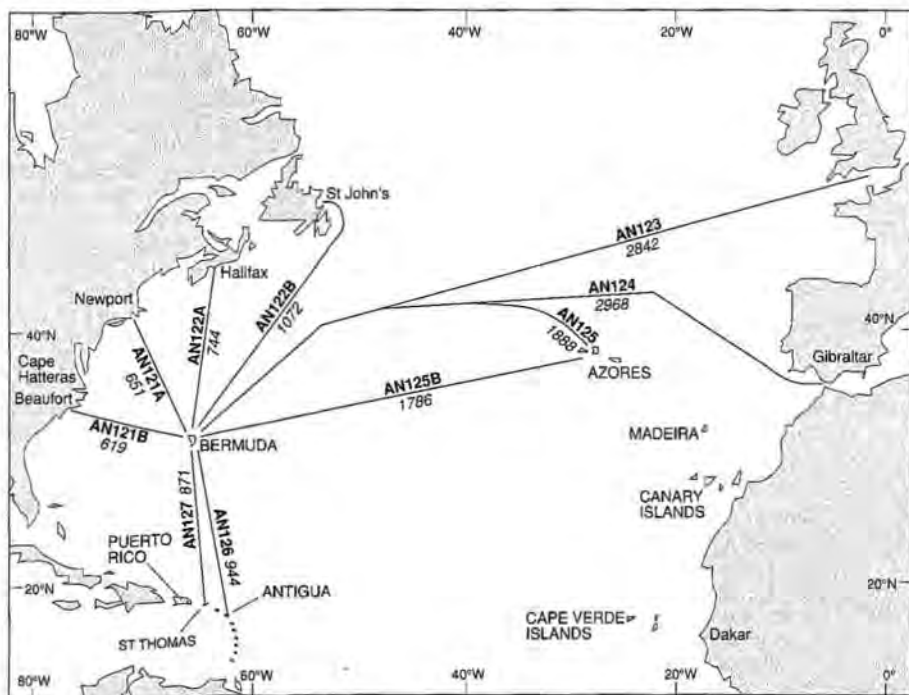
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to call there. However, with reliable lights and clearly marked channels, the approaches are not too difficult, unless one attempts to make landfall at night or in a southwesterly blow, neither of which are recommended.

Bermuda is in the Horse Latitudes, the region of variables north of the trade wind zone and south of the westerlies. There is no prevailing wind and the weather of the island is affected by two main systems, the position of the Azores high and the flow of weather systems over the eastern seaboard of the United States into the Atlantic. In summer the Azores high is the dominating feature and produces SW winds of around 15 knots. The Gulf Stream also influences the climate, making the water around Bermuda warmer and keeping the winters mild. Hurricanes cannot be ignored, although most of these tropical storms which form in the North Atlantic curve to pass to the west of Bermuda, very few storms passing directly over the island. The hurricane season is officially 1st

June to 30th November, the greatest frequency occurring from August until October. In winter high winds and gales strike the island, February being the worst month with an average of 8 gales.

Around 1000 cruising boats call at Bermuda every year, most of them spending only a few days there before setting off for new destinations. Bermuda is the finishing point of various races from the US east coast, the biannual race from Newport being one of the longest established offshore races in the world. Most people, however, use Bermuda as a convenient springboard either to the Caribbean or to the Azores and Europe. The routes radiating from Bermuda are very seasonal, the spring, from April to June, being busy with boats returning home either to North America or Europe. At such time, European boats are in the majority and in Bermuda they are joined by US or Canadian boats also bound for Europe. The summer sees mainly a two-way traffic from the USA as the hurricane season keeps most people away



AN120 Routes from Bermuda

from the Caribbean, while the autumn brings a new influx of North American boats on their way south.

Those starting their transatlantic voyage in Bermuda are confronted with a serious challenge and there are few routes described in this book on which access to up-to-date weather information is of such paramount importance as the route to the Azores. The position of the North Atlantic high or anticyclone, commonly referred to as the Azores high, ought to be known at all times and a course chosen accordingly. Occasionally, uncommon easterly winds slow down the boats making their way to the Azores in spring. This is due to the Azores high being situated much farther north than its normal position for an unusually long time, allowing easterly winds to make

themselves felt as far north as 40°N. Under such circumstances, even the accepted practice of heading north to pick up the prevailing westerlies would make no difference.

Passages to the United States are very much a matter of luck as they can be fast and comfortable with southerly winds, or a hard beat if north-westerly winds are generated by a depression passing to the north. Because of the north-setting Gulf Stream, passages to ports south of Cape Hatteras are a difficult undertaking. However, the Gulf Stream does not affect passages to the Eastern Caribbean, which are best undertaken at the change of seasons, between the middle of November and early December.

AN121 Bermuda to USA

BEST TIME:	May to June				
TROPICAL STORMS:	June to November				
CHARTS:	BA: 4403				
	US: 403				
PILOTS:	BA: 69, 70				
	US: 140, 147				
CRUISING GUIDES:	<i>Cruising Guide to the Atlantic Coast, Cruising Guide to the New England Coast.</i>				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
Route AN121A					
AN1210 St George's 32°22'N, 64°40'W	AN1211 Bermuda W 32°12'N, 64°50'W	AN1213 Brenton 41°24'N, 71°16'W	Newport 41°29'N, 71°20'W	651	
		AN1214 Chesapeake 36°45'N, 75°45'W		615	
Route AN121B					
AN1210 St George's	AN1212 North Rock 32°30'N, 64°50'W	AN1213 Brenton AN1214 Chesapeake	Newport	634 607	

Summer passages to most ports on the US east coast normally benefit from pleasant weather and the only thing to spoil the picture is the risk of tropical storms whose tracks pass too close to Bermuda for comfort. Such storms, however, are kept under such close observation from the moment they start forming that warnings are usually given long before they are likely to strike. Nevertheless, passages during the months with the highest frequency of hurricanes, from August to the end of October, should be avoided. Safer pas-

sages, in both directions, can be made in late spring and early summer. The high frequency of SW winds in summer should provide good sailing conditions to most ports lying north of Cape Hatteras, but this is rarely the case. Even in May and June, the weather can often turn quite rough and the worst conditions have been recorded in the area of the Gulf Stream. The passage of cold fronts from continental America produces unsettled weather, which is often accompanied by violent rain squalls. This can be particularly dangerous in the

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Gulf Stream, when a strong wind blows against the equally strong current and therefore the Gulf Stream should always be crossed at right angles to minimise the time spent in it. A ride in the Gulf Stream should only be attempted if the weather is settled.

Depending on weather conditions on leaving Bermuda, the island can be left either to port or starboard before course is set for one's port of destination. If a SW course can be sailed after leaving the island, the point of departure will be WP AN1211, SW of the island and well clear of all dangers. Boats going around the north of Bermuda and leaving the island to port will take

their departure at WP AN1212 off North Rock. Because of the multitude of destinations and resulting routes, only landfall waypoints for the main destination have been given, AN1213 SE off Brenton Reef, for boats bound for Newport, or AN1214 at the entrance into the south channel leading into the Chesapeake Bay. For those not familiar with the USA, who are sailing there at the beginning of the summer season, a useful tip is to start their cruising as far north and east as possible, so as to benefit most from the warm weather and also the reduced risk of hurricanes, and then work their way gradually to the south.

AN122 *Bermuda to Canada*

BEST TIME:	Mid-June to July			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011			
	US: 121			
PILOTS:	BA: 59, 65, 70			
	US: 140, 145, 146, 147			
CRUISING GUIDES:	<i>Cruising Guide to the Nova Scotia Coast, Cruising Guide to Newfoundland.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN122A				
AN1220 St George's 32°22'N, 64°40'W	AN1221 North Rock 32°30'N, 64°50'W	AN1222 off Halifax 44°25'N, 63°25'W	Halifax 44°38'N, 63°34'W	744
Route AN122B				
AN1220 St George's	AN1221 North Rock AN1223 Race 46°25'N, 53°10'W	AN1224 Spear 47°30'N, 52°39'W	St John's 47°34'N, 52°42'W	1077

Weather conditions for this route are similar to AN121, although the optimum time for sailing it is somewhat later. One added complication is that at the beginning of summer passages to ports in Newfoundland can be affected by ice. Fog is yet another consideration on these routes and these factors limit northbound passages to the high summer. Favourable conditions can be expected at this time because of a high proportion of SW winds. Earlier passages, at the end of May or in June, may also benefit from favourable winds, but a careful eye should be kept on the weather and should there be a gale warning, the course should be altered to

avoid being caught on one of the banks where the strong wind will generate very rough seas. Similar action should be taken if there is a threat of a northerly gale while riding the Gulf Stream.

Taking WP AN1221 north of Bermuda as a departure point, a direct course (AN122A) leads to WP AN1222 in the approaches to Halifax, Nova Scotia. Leaving from the same waypoint AN1221, the course for St John's, Newfoundland (AN122B), uses WP AN1223 SE of Cape Race, as an intermediate point before course is altered for WP AN1224 off Cape Spear in the approaches to St John's.

AN123 *Bermuda to Northern Europe*

BEST TIME:	May to July			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011 US: 120, 121			
PILOTS:	BA: 27, 40, 67, 70 US: 140, 147, 191			
CRUISING GUIDES:	<i>Shell Pilot to the English Channel, Vols. 1 & 2.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1230 Bermuda 32°22'N, 64°38'W	AN1231 39°00'N, 55°00'W AN1232 39°00'N, 50°00'W	AN1233 Lizard 49°55'N, 5°10'W		2842

The nonstop route to Northern Europe is far less popular than AN125, as most sailors prefer to stop in the Azores, conveniently placed about halfway between Bermuda and Europe. However, the direct route has the advantage over route AN125 that once the prevailing westerly winds have been found they can usually be held for most of the crossing. On leaving Bermuda, from WP AN1230 it is recommended to sail a NNE course to WP AN1231 before altering course for WP AN1232. Having reached that point, the great circle route to the English Channel can be joined. It must be stressed that both are highly hypothetical points, as the main objective of the exercise is to reach as quickly as possible the area of prevailing westerly winds. To avoid the southern limit of ice, in early summer it is recommended that the latitude of WP AN1232 is not passed. If one has access to either weather or ice information, and knows what to expect in the immediate future, or if favourable SW winds are found right from the start, the great circle route can be joined directly. Occasionally it

may be necessary to go to 40°N or even further north to reach the area of prevailing westerlies.

While the frequency of gales is lower to the south of the recommended route, the temptation to turn east too soon should be resisted because of the danger of losing the westerlies as one enters the Azores high which extends further north in summer. The Gulf Stream runs along most of this route and a favourable rate of at least 1/2 knot can be expected. Boats that have tried to follow the great circle route all the way from Bermuda to the English Channel have experienced prolonged calms as the route crosses the area of high pressure, hence the two recommended waypoints. In the absence of reliable weather information it is therefore recommended to make the crossing in higher, rather than lower, latitudes. Hurricanes rarely affect this route outside the immediate vicinity of Bermuda, but late summer passages are nevertheless discouraged because of the violent storms that occasionally occur in the Eastern Atlantic after the middle of August.

AN124 *Bermuda to Gibraltar*

BEST TIME:	May to July			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011 US: 120			
PILOTS:	BA: 67, 70 US: 140, 143, 147			
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot.</i>			

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
AN1240 Bermuda 32°22'N, 64°38'W	AN1241			
	39°00'N, 55°00'W			
	AN1242			
	40°00'N, 20°00'W			
	AN1243 Vincent NW			
	37°00'N, 9°08'W			
	AN1244 Hoyo			
	36°04'N, 6°20'W			
	AN1245 Tarifa			
	35°59'N, 5°36'W			
AN1246 Carnero	AN1247 Gibraltar	Marina Bay	2968	
36°03'N, 5°25'W	36°08'N, 5°22'W	36°09'N, 5°21'W		

Boats bound for the Mediterranean have the choice of sailing nonstop from Bermuda or the more popular alternative of breaking the voyage in the Azores. The direct route should follow similar instructions as AN123 so as to make most of the Atlantic crossing with the help of the prevailing westerly winds and east setting current. Taking one's leave from WP AN1240 NE of Bermuda, a course should be set for WP AN1241. Depending on weather conditions, the crossing should be made as close as feasible to latitude 40°N, or even higher if conditions warrant it. From WP AN1242 the course can be altered for WP AN1243, seven

miles west of Cape St Vincent. It is unlikely that westerly winds will continue beyond WP AN1242, as the prevailing winds of summer in the vicinity of the Portuguese coast are northerly. Instructions for the section between Cape St Vincent and Gibraltar are described in detail in route AN16 (page 44).

A stop in the Azores will provide an interesting interlude, but will add considerably to the passage. Allowance should also be made for a slower passage from the Azores to continental Europe. For more details see routes AN125 and AN134 (below and page 146).

AN125 Bermuda to Azores

BEST TIME:	May to June			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011			
	US: 120			
PILOTS:	BA: 67, 70			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN125A				
AN1250 Bermuda 32°22'N, 64°38'	AN1251			
	40°00'N, 55°00'W			
	AN1252			
	40°00'N, 50°00'W			
	AN1253 Azores	AN1254 Flores	Lajes	1761
	40°00'N, 32°30'W	39°20'N, 31°18'W	39°23'N, 31°10'W	
	AN1255 Faial	Horta	1888	
	38°30'N, 28°50'W	38°32'N, 28°37.5'W		

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN125B				
AN1250 Bermuda		AN1254 Flores AN1255 Faial	Lajes Horta	1670 1786

The Azores are situated in such a convenient position in mid-Atlantic that very few boats choose to sail nonstop from Bermuda to Europe. Because Bermuda lies to the south of the region of prevailing westerlies, the recommended strategy is to make as much northing as possible after leaving Bermuda in the hope of picking up favourable winds around latitude 40°N. The advantages of this somewhat indirect route (AN125A), which goes north of 40°N, are a greater certainty of W or SW winds and a favourable current. The disadvantages are a higher frequency of gales and a colder and wetter passage than along a more southerly route which does not go beyond latitude 38°N. Opinions are divided as to which is the best course to follow and in fact some people prefer to forgo the chance of favourable winds and, in their attempts to find the most pleasant alternative, follow a rhumb line to the Azores (AN125B). This option may indeed ensure warmer weather, but is often bedevilled by calms and headwinds. If the northern route is sailed in late spring or even early summer, it is advisable not to sail beyond 40°N before WP AN1252 is reached, because of the danger of ice in the early part of summer.

May and June are the best months to make this passage, a later start being preferable if the northern route is chosen. If this decision is taken, it is best to commit oneself fully to that route and sail almost NNE on leaving Bermuda so as to enter the region of westerlies as soon as possible. After the beginning of July, the risk of hurricanes becomes increasingly higher in the area around Bermuda and this passage should only be made at such time if absolutely necessary. The risk of hurricanes recedes as one moves east across the Atlantic, although the effects of a hurricane can be felt as far east as the Bay of Biscay.

Looking at the records of passages made over a number of years, it soon becomes obvious that the slowest passages were made by those who were not prepared to go far enough north in search of westerlies. Most of those who stayed south of lat-

itude 38°N encountered calms as they entered the ridge of high pressure that extends between Bermuda and the Azores much earlier than if they had kept further north. Sooner or later the Azores high will slow down any boat making this passage, but by approaching the Azores from the NW rather than the west, the ridge of high pressure will be crossed at right angles and the time needed to cross it will be shorter. At such times the use of the engine is recommended and, particularly if taking a southern route, a good supply of fuel should be taken on board before leaving Bermuda.

Taking WP AN1250 as a departure point from Bermuda, boats sailing on route AN125A are recommended to set a course for WP AN1251 and remain on that latitude to WP AN1252. In late spring, the course should not go above latitude 39°N because of the risk of ice. If weather conditions are favourable, the same latitude should be maintained as far as WP AN1253, 60 miles NW from Corvo and Flores, the westernmost islands in the Azores. From this point, course can be altered for one's port of destination.

Boats bound for Lajes, on the SE coast of Flores, should make landfall at WP AN1254, off Ponta do Ilheus, the SW extremity of Flores and then follow the south coast of the island to Lajes. The recent improvements to Lajes have made it an attractive first port of call into the Azores. If bound directly for Horta, which continues to be the favourite Azorean destination, from WP AN1253 course should be set for WP AN1255, five miles SW of Ponta do Castelo Branco, and then sail along Faial's south coast, which is the recommended way to approach Horta. In strong SW winds, if Horta is approached from the north, allowance should be made for a strong contrary current in the channel between Faial and Pico.

Boats following a rhumb line from Bermuda (AN125B), can set a direct course from WP AN1250 for AN1254, if bound for Lajes das Flores, or for WP AN1255, if bound for Horta.

AN126 Bermuda to Lesser Antilles

BEST TIME:	November to mid-December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4400 US: 400			
PILOTS:	BA: 70, 71 US: 140, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Cruising Guide to the Leeward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1260 Bermuda 32°22'N, 64°38'W	AN1261 Barbuda 17°30'N, 61°30'W	AN1262 Antigua E 17°00'N, 61°40'W	English Harbour 17°00'N, 61°45'W	944
AN1260 Bermuda	AN1263 Sombrero 18°40'N, 63°30'W	AN1265 Antigua NW 17°10'N, 61°55'W	St Johns 17°07'N, 61°52'W	968
	AN1264 Martin 17°55'N, 63°22'W			

It is difficult to suggest an optimum time for this passage as the summer carries the danger of tropical storms and the winter that of northerly gales. The best time to make this passage is at the change of seasons, when the risk of hurricanes has abated and the frequency of winter storms is acceptably low. Most boats making this passage actually do it at the best time which fortunately coincides with most people's cruising plans. North American boats passing through Bermuda in November are all on their way to the Eastern Caribbean for the start of the winter sailing season.

In November or early December, the winds on leaving Bermuda can be from any direction, and if they are light it is advisable to motor so as to make the necessary southing. Having passed through the belt of variables, the NE trade winds should be found between latitudes 22°N and 25°N. As the northern approaches to the Lesser Antilles are quite dangerous because of the many unlit reefs, as much easting as possible should be made in the early part of the passage so as to pass well to windward of all dangers and approach Antigua from the NE. If this proves to be too difficult, it is better to choose an easier landfall and continue to Antigua, or any other island, in shorter stages.

Taking as a departure point WP AN1260 just out-

side Town Cut, a direct course leads to WP AN1261, 15 miles east of Barbuda. The course is then altered for WP AN1262, off Antigua's SE coast. Entry formalities can be completed at English Harbour. If, as suggested above, it is impossible to make sufficient easting to approach the Antilles from windward, a course should be set for WP AN1263, 5 miles north of Sombrero light at the entrance into Anegada Passage. From there course is altered for WP AN1264 NW of St Martin and finally for WP AN1265 off Antigua's west coast. From there the south coast is followed to English Harbour, unless one prefers to complete formalities in the capital St Johns, in which case the course for the latter should be changed earlier.

Although a passage along this route during the hurricane season cannot be recommended, fair weather can be expected at the beginning of summer when the risk of hurricanes is not very high. If southerly winds are encountered on leaving Bermuda, which is quite likely, these should be used to make some easting before the trades are found near latitude 25°N. Occasionally the summer trades do not have a southerly component and then it may be possible to sail a direct course to the Leeward Islands, Antigua being one of the easiest to approach. Otherwise it may be necessary to make landfall in the Virgins as mentioned above.

AN127 *Bermuda to Virgin Islands*

BEST TIME:	November to mid-December			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4400 US: 400			
PILOTS:	BA: 70, 71 US: 140, 147			
CRUISING GUIDES:	<i>Cruising Guide to the Virgin Islands, Yachtsman's Guide to the Virgin Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1270 Bermuda 32°22'N, 64°38'W	AN1271 Culebrita 18°26'N, 65°10'W		Charlotte Amalie 18°23'N, 64°56'W	850
AN1270 Bermuda	AN1272 Anegada 18°45'N, 63°35'W		Virgin Gorda 18°27'N, 64°26'W	871

The same directions apply as for route AN126 until the area of trade winds has been reached. Taking as a departure point WP AN1270 just outside Town Cut, a direct course leads to WP AN1271, eight miles NE of the light on Culebrita Island. Keeping at a safe distance to avoid the dangers off the western point of St Thomas, that island's south coast is followed to its main port of Charlotte Amalie.

Approaching the Virgin Islands from the north, as suggested above, may present some difficulties as most dangers are unlit. As an alternative, it might be advisable to make a landfall on Sombrero

Island, which has a powerful light, and approach the Virgins from windward rather than try and make landfall directly on St Thomas. In such a case a course should be set for WP AN1272, 15 miles NW of Sombrero light at the entrance into Anegada Passage. The latter course is in any case recommended for destinations in the British Virgins. Arriving from a NE direction, the nearest port of entry is at Virgin Gorda. However, extreme attention should be paid to the numerous dangers surrounding the Virgin Islands.

AN130 ROUTES FROM THE AZORES

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Approximately 1000 boats pass through the Azores every year, the majority arriving there from the Caribbean, either direct or via Bermuda. During July a few boats arrive from North America and Northern Europe, but the traffic is confined mainly to the months of May and June, when most

boats are on their way to either Northern Europe or the Mediterranean. These are the two main routes taking boats away from the Azores. Boats bound for the English Channel and beyond are usually faced with a tougher passage as the prevailing winds in early summer, when most of these

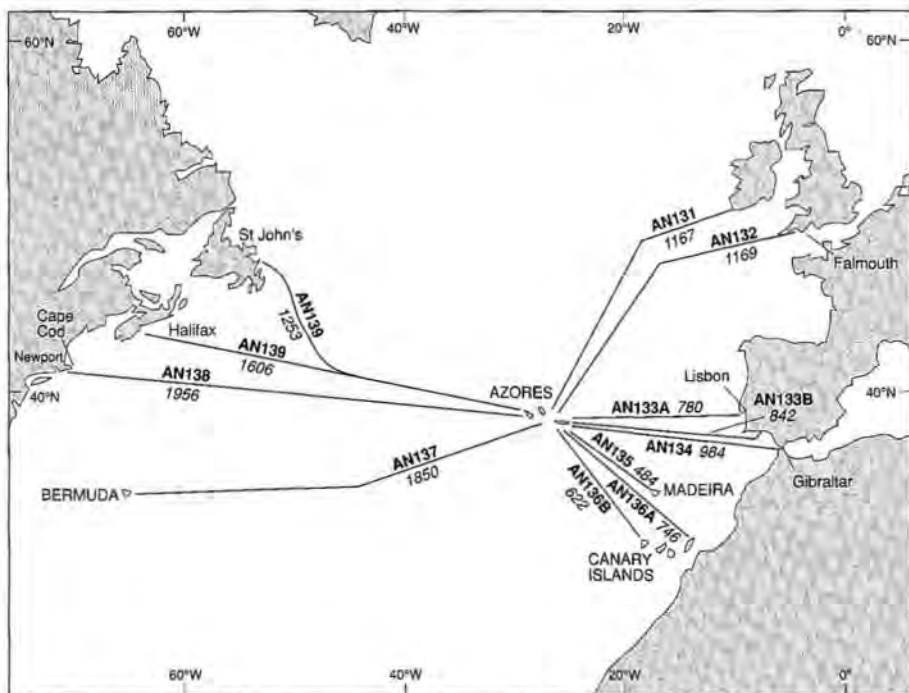
ROUTES IN THE NORTH ATLANTIC

passages are made, are from the NE. Those same winds make the passage to the Mediterranean an easier affair.

The weather in the Azores themselves is very changeable and this is probably the main reason why most people do not cruise the islands and instead confine themselves to only one stop, usually the marina in Ponta Delgada and improvements to several ports, notably Lajes on the island of Flores, may well change matters.

The Azores boast an Atlantic climate, of which the dominant feature is the area of high pressure named after them. The position of the Azores high varies with the season, being more to the north in October and furthest south in February. It usually lies to the S or SW of the islands and in summer is often stationary, when prolonged periods of calm can be expected. At other times the winds are very variable in both strength and direction,

although those from the western sector are slightly more frequent. Close to land the wind is deflected, especially where the coastline is steep and the direction of the wind varies from island to island and place to place. The weather in the Azores is also affected by the lows which pass across the Atlantic from west to east. These usually pass to the north, except in winter when they can pass directly over the islands. When one of these fronts passes, the winds change quickly, veering from SW to NW and bringing rain. Rain occurs in all months, although more falls in winter, especially associated with the Atlantic lows. Although not in the hurricane belt, extremely rarely a rogue hurricane has taken an abnormal path to pass near the Azores, but is generally weakened by the time it reaches that far. There is a moderate frequency of gales over the Azores, of which more occur in winter months.



AN130 Routes from the Azores

AN131 Azores to Ireland

BEST TIME:	June to July
TROPICAL STORMS:	None
CHARTS:	BA: 4011 US: 126
PILOTS:	BA: 22, 27, 40, 67 US: 140, 142, 143
CRUISING GUIDES:	<i>Cruising Association Handbook</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
AN1310 Horta 38°32'N, 28°37'W	AN1311 Graciosa 39°00'N, 27°55'W	AN1315 Cork 51°45'N, 8°17'W	Crosshaven 51°48.5'N, 8°17.5'W	1167
AN1312 Delgada 37°44'N, 25°40'W	AN1313 Arnel 37°50'N, 25°05'W	AN1315 Cork	Crosshaven	1126
AN1312 Delgada	AN1314 Ferraria 37°52'N, 25°52'W	AN1315 Cork	Crosshaven	1130

The same general directions apply as for route AN132, but as destinations in Ireland are more westerly than those in the English Channel, the suggestion to sail due north on leaving the Azores does not have to be followed slavishly as it does not matter too much if some leeway is made to the west. This can be corrected later with the help of the westerlies that normally prevail in higher latitudes. Calms are sometimes experienced in the vicinity of the Azores, particularly in July and August, when the Azores high reaches its maximum pressure of the year. Calms and light variable winds might also be encountered en route, so one should leave with a good supply of fuel. With the exception of the odd sunny day at the start, the weather along this route is invariably grey, wet, and cold.

Boats leaving from Horta should pass close to the western extremity of São Jorge and then set

course for WP AN1311 one mile SE of Ilheu de Baixo, a small islet off Graciosa's SE extremity. A northerly course can then be set to pass east of Graciosa. In strong SW winds, shelter can be sought at the well protected port of Praia (39°03'N, 27°58'W), on Graciosa's east coast, although such winds should really be used to advantage.

If leaving from Ponta Delgada, São Miguel's south coast should be followed as far as Ponta do Arnel, its easternmost headland, to WP AN1313 from where a course can be set for one's destination. In strong NE winds, it is better to sail west on leaving Ponta Delgada and take one's leave from the Azores at WP AN1314 off Ponta da Ferraria at the NW extremity of São Miguel. Landfall is made at WP AN1315, in the approaches to Cork Harbour, one of the best protected ports on the south coast of Ireland. Entry formalities are completed in Crosshaven.

AN132 Azores to English Channel

BEST TIME:	June to July
TROPICAL STORMS:	None
CHARTS:	BA: 4103 US: 126
PILOTS:	BA: 22, 27, 67 US: 140, 143, 191
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell Pilot to the English Channel Vol. 1.</i>

ROUTES IN THE NORTH ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1320 Horta 38°32'N, 28°37'W	AN1322 Graciosa 39°00'N, 27°55'W AN1325 43°00'N, 20°00'W			
	AN1326 47°50'N, 10°00'W	AN1327 Lizard 49°55'N, 5°10'W	Falmouth 50°09'N, 5°04'W	1227
AN1321 Delgada 37°44'N, 25°40'W	AN1323 Arnel 37°50'N, 25°05'W AN1325 AN1326	AN1327 Lizard	Falmouth	1169
AN1321 Delgada	AN1324 Ferraria 37°52'N, 25°52'W AN1325 AN1326	AN1327 Lizard	Falmouth	1174

The prevailing winds of summer are NE and therefore all passages from the Azores to Northern Europe are usually close hauled. A direct course for the English Channel is rarely possible, nor is it advisable, as the westerly winds and east-setting current that prevail in higher latitudes will set the boat into the Bay of Biscay. The usual tactic for this route is to sail due north until steady westerly winds are encountered, but not to join the great circle route to the English Channel before latitude 45°N has been reached.

In the area immediately to the north of the Azores calms are frequent, their extent depending on the position of the Azores high and the ridge of high pressure that normally extends from it towards Europe during summer. If such calm spots are encountered one should be prepared to motor through them and make the desired northing. Even if there is no wind, the weather will be fine and sunny before it gives way to westerly winds, overcast skies, and generally wet and cold weather. Summer weather for the English Channel is difficult to predict and the winds can come from any direction and at any strength. Visibility can become poor in the approaches to the Channel and

both this fact and the presence of strong tidal currents, as well as the large amount of shipping, must all be borne in mind when making a landfall on the English coast.

Boats leaving from Horta should pass close to the western extremity of São Jorge and on to WP AN1322 one mile SE of Ilheu de Baixo, an islet off Graciosa's SE point. From there, a northerly course is set to reach the area of prevailing westerly winds at which point the course can be altered for WP AN1327.

If leaving from Ponta Delgada, São Miguel's south coast should be followed as far as Ponta do Arnel, its easternmost headland, to WP AN1323. In strong NE winds, it is better to sail west on leaving Ponta Delgada and take one's leave from the Azores at WP AN1324 off Ponta da Ferraria, São Miguel's NW extremity. A course should then be set for WPs AN1325 and AN1326 on the rhumb line to the English Channel, where landfall will be made at WP AN1327 10 miles south of Lizard Point. A convenient place to clear into the United Kingdom is the port of Falmouth (50°09'N, 5°04'W).

AN133 Azores to Portugal

BEST TIME:	May to September			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103			
	US: 126			
PILOTS:	BA: 67			
	US: 140, 143			
CRUISING GUIDES:	<i>Atlantic Spain and Portugal</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN133A				
AN1330 Delgada	AN1331 Garça	AN1333 S Channel	Lisbon	780
37°44'N, 25°40'W	37°42'N, 25°22'W	38°37'N, 9°20'W	38°41.5'N, 9°12'W	
AN1332 Sta Maria		AN1333 S Channel	Lisbon	757
36°56'N, 25°00'W				
Route AN133B				
AN1330 Delgada	AN1331 Garça	AN1335 off Vilamoura	Vilamoura	842
	AN1334 Vincent SW	37°03'N, 8°06'W	37°04.5'N, 8°07'W	
	36°55'N, 9°00'W			
AN1332 Sta Maria	AN1334 Vincent SW	AN1335 off Vilamoura	Vilamoura	812

Favourable winds can be expected for most of the way if this passage is made at the beginning of summer. The winds in the vicinity of the islands are variable, with a predominance of SW winds. In May and early June a belt of calms is usually crossed somewhere between the Azores and the mainland before entering the area of prevailing northerly winds. At times the calms can be quite extensive and one should be prepared to motor. Steadier winds can be expected towards the middle of summer. During July and August the strong Portuguese trades, blowing at a steady 15–20 knots, make this a fast and exhilarating trip. Such northerly winds will be encountered from about 300 miles off the Portuguese coast. Occasionally, if the Azores high is located north of the islands, NE winds may be experienced all the way across to Portugal. Because of the prevailing winds, northern ports on the Portuguese coast will be to windward if a rhumb line is sailed from the Azores. This should be taken into account, and also the south setting Portugal Current, when final course adjustments are made for the port of destination

so as to approach the coast slightly to windward of the intended port.

Boats that have cruised the Azores from NW to SE will find it more convenient to take their departure either at Ponta Delgada on São Miguel, or Vila do Porto, on Santa Maria. In the former case, a direct course for the Portuguese mainland can be set from WP AN1331 south of Ponta da Garça, on São Miguel's south coast. If leaving from Santa Maria, the departure point is WP AN1332 off that island's Ponta do Castelo, on Santa Maria's SE extremity. Boats bound for Lisbon (AN133A) should make their landfall at WP AN1333. From there the South Channel leads into the Tagus River on whose north shore lies the Portuguese capital.

The route to Vilamoura, on the Algarve coast (AN133B), leads due east to WP AN1334, 6 miles south of Cape St Vincent. Avoiding the heavy traffic passing through the area, the course should be altered for WP AN1335, one mile SW of Vilamoura. The marina monitors VHF channels 16 and 20.

AN134 Azores to Gibraltar

BEST TIME:	May to September			
TROPICAL STORMS:	None			
CHARTS:	BA: 4103			
	US: 126			
PILOTS:	BA: 67			
	US: 131, 140, 143			
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1340 Delgada 37°44'N, 25°40'W	AN1341 Garça 37°42'N, 25°22'W			
	AN1343 Strait 36°00'N, 6°00'W			
	AN1344 Tarifa 35°59'N, 5°36'W	AN1345 Gibraltar 36°08.5'N, 5°22'W	Marina Bay 36°09'N, 5°21'W	984
AN1342 Sta Maria 36°56'N, 25°00'W	AN1343 Strait AN1344 Tarifa	AN1345 Gibraltar	Marina Bay	952

Directions as far as Cape St Vincent are the same as those for AN133 and similar weather conditions can be expected until the route comes under the influence of continental weather. East of Cape St Vincent, the Portuguese trades are normally lost and winds become more local in character. On summer days, a SW sea breeze occurs on approaching the Bay of Cadiz. This wind comes up around noon and lasts until midnight. If a strong *Levanter* is predicted in the Strait of Gibraltar, it is advisable to wait for a change in one of the ports along the Algarve coast (Vilamoura), Costa de la Luz (Mazagon, near Huelva), or Bay of Cadiz (Puerto Sherry). Another convenient port is Barbate, which is not far west of Tarifa and is the closest to the Strait. Alternatively, one can find some shelter in the lee of Tarifa Island itself. The latest weather information, as well as other shipping news, can be obtained from Tarifa Radio, which operates a 24-hour service in both Spanish and English.

Two convenient ports from where to depart the Azores are Ponta Delgada, on São Miguel, or Vila do Porto, on Santa Maria. In the former case, a direct course for the Strait of Gibraltar can be set from WP AN1341 south of Ponta da Garça, on São Miguel's south coast. If leaving from Santa Maria, take your departure from WP AN1342 off that island's Ponta do Castelo. A direct course should be set to WP AN1343 in the approaches to the Strait of Gibraltar. From there, sail due east to WP AN1344, two miles south of Tarifa Island by staying inshore of the westgoing shipping lane. A course parallel to the Spanish coast will take one into the Bay of Gibraltar. The reporting dock for customs and two of the marinas are easiest found by making for WP AN1345 off the North Mole. Detailed directions for negotiating the Strait of Gibraltar are given in route AN16 (page 44).

AN135 *Azores to Madeira*

BEST TIME:	May to August
TROPICAL STORMS:	None
CHARTS:	BA: 4104 US: 126
PILOTS:	BA: 1, 67 US: 143
CRUISING GUIDES:	<i>Atlantic Islands, Madeira Cruising Guide.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
AN1350 Vila 36°57'N, 25°07'W		AN1351 Pargo 32°38'N, 17°20'W	Funchal	484
			32°37.5'N, 16°54.5'W	

The winds between these two Portuguese outposts are usually favourable and the likelihood of NE winds increases as one approaches Madeira. A good departure port from the Azores is Vila do Porto on the island of Santa Maria as it is the nearest to Madeira. From WP AN1350 south of Vila do

Porto, a direct course can be set for WP AN1351 off Ponta do Pargo at Madeira's western end. From there the course runs parallel to Madeira's SW coast to the capital and main port Funchal. Funchal marina monitors VHF channel 16 during office hours.

AN136 *Azores to Canary Islands*

BEST TIME:	June to August
TROPICAL STORMS:	None
CHARTS:	BA: 4104 US: 126
PILOTS:	BA: 1, 67 US: 143
CRUISING GUIDES:	<i>Canary Islands Cruising Guide, Atlantic Islands.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
Route AN136A				
AN1360 Delgada 37°44'N, 25°40'W		AN1363 Graciosa 29°25'N, 13°35'W	La Sociedad	794
AN1362 Vila 36°57'N, 25°07'W		AN1363 Graciosa	La Sociedad	746
Route AN136B				
AN1360 Delgada		AN1364 Palma 28°52'N, 17°45'W	Santa Cruz	675
AN1362 Vila		AN1364 Palma	Santa Cruz	622

Both winds and current are usually favourable on this passage. If the intention is to cruise the Canaries it is best to sail first to one of the eastern islands of the Canarian archipelago, such as Lanzarote. This will ensure favourable winds during the subsequent cruise and also allows the islands to be visited in

logical order. The direct route from the Azores to Lanzarote (AN136A) passes so close to Madeira as to make a stop there almost unavoidable. Directions for the route to Madeira are described in AN135. The subsequent section from Madeira to the Canaries is dealt with in route AN41 (page 65).

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The direct route from Ponta Delgada or Santa Maria to Lanzarote (AN136A) bypasses Madeira and goes NE of the Salvagem Islands. Landfall is made at WP AN1363, about 5 miles NW of Graciosa, before entering Estrecho del Rio, the channel separating Graciosa from Lanzarote. Although not a port of entry, boats may stop for a short time at La Sociedad, the main port and settlement on Graciosa, before proceeding to Lanzarote and clearing in there.

If the Canaries are only used as an intermediate stop to prepare for a transatlantic passage, it may be more convenient to only call at one of the western islands, such as La Palma (AN136B). Course should be set for WP AN1364 NE of the island's capital, Santa Cruz de la Palma. This is an excellent place for reprovisioning the boat for the onward passage.

AN137 Azores to Bermuda

BEST TIME:	June to July			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012			
	US: 120			
PILOTS:	BA: 67, 70			
	US: 140, 143, 147			
CRUISING GUIDES:	<i>Yachting Guide to Bermuda.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1371 Faial 38°30'N, 28°37'W	AN1373 35°00'N, 35°00'W	AN1374 Bermuda 32°22'N, 64°38'W	St George's 32°22'N, 64°40'W	1850
AN1372 Flores 39°22'N, 31°10'W	AN1373	AN1374 Bermuda	St George's	1804

For most sailors contemplating this passage, the Azores are only a convenient stop on a longer voyage, and so is the stop in Bermuda. Horta used to be the traditional starting point for the passage to Bermuda, but the improvements to the port of Lajes, on Flores, now makes it possible to start one's voyage at the western extremity of the Azorean archipelago. However, as the recommended tactic is to reach the latitude of Bermuda as soon as possible, the advantage of starting from Lajes is minimal. From whichever port one leaves, it is essential to obtain a long term weather forecast. If westerly winds are forecast it is best to wait for a change rather than try to beat one's way westward. The recommended time, in June or July, is not necessarily the one with the most favourable winds, but with the best chance of good weather.

In summer the predominant winds on the direct route, and especially north of latitude 35°N, are SW and there is also a contrary current, so it is rec-

ommended to sail as much as possible on Bermuda's own latitude. This may even entail going further south, to be assured of favourable winds. If westerly winds are encountered in the early part of the voyage, one should stay on the starboard tack even if it means going as far south as latitude 30°N. In summer, the further south one sails, the higher the proportion of easterly winds. The one disadvantage of a late summer passage is the increased risk of hurricanes in or around Bermuda.

If leaving from Horta, from WP AN1371 set a first course to WP AN1373. Boats leaving from Lajes at WP AN1372 should follow the same directions and also set course for the same intermediate waypoint. From that point, the route should follow closely the latitude of Bermuda, as described above. Landfall is made at WP AN1374, two miles from Town Cut at the entrance into St George's Harbour.

AN138 Azores to USA

BEST TIME:	June to July			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011 US: 120			
PILOTS:	BA: 67, 68, 69 US: 140, 143			
CRUISING GUIDES:	<i>Coastal Cruising Guide to the Atlantic Coast, Cruising Guide to the New England Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1381 Faial 38°30'N, 28°37'W		AN1382 Brenton 41°24'N, 71°16'W	Newport 41°29'N, 71°20'W	1956
		AN1383 Chesapeake 36°45'N, 75°45'W		2218

A difficult decision to be taken on leaving the Azores is whether or not to call at Bermuda. If a stop in Bermuda is envisaged, the same directions apply as for route AN137. Otherwise, it is probably better to wait and see what the weather does, then sail a course which does not take one too far away from the recommended route to Bermuda, so as to be able to stop there if necessary. The chances of finding favourable winds above latitude 35°N are quite low, which only reinforces the argument for making the passage close to, or even below, the latitude of Bermuda. Therefore, a stop there becomes almost unavoidable, especially for boats bound for ports south of New York. Those

sailing to ports lying further NE may find it possible to alter course from about longitude 55°W for their port of destination. Because of the multitude of destinations and resulting routes, only landfall waypoints for the main destinations have been given, AN1382 SE of Brenton Reef in the approaches to Newport, for boats heading for that port, or AN1383 at the entrance into the south channel leading into Chesapeake Bay.

If this passage is made after the middle of June, the risk of an early tropical storm should be borne in mind as the tracks of previous hurricanes pass through the area between Bermuda and continental USA.

AN139 Azores to Canada

BEST TIME:	July to August			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011 US: 120			
PILOTS:	BA: 67, 68, 69 US: 140, 143			
CRUISING GUIDES:	<i>Cruising Guide to the Nova Scotia Coast, Cruising Guide to Newfoundland.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1391 Faial 38°30'N, 28°37'W		AN1392 off Halifax 44°25'N, 63°25'W	Halifax 44°38'N, 63°34'W	1806
AN1391 Faial	AN1393 Race 46°25'N, 53°10'W	AN1394 Spear 47°30'N, 52°39'W	St John's 47°34'N, 52°42'W	1253

Directions are similar to those for route AN138 and similar tactics are suggested if westerly winds are encountered after leaving the Azores. Going on to a port tack too early in the voyage carries the risk of making too much northing and entering an area of steady westerlies and also a contrary current. Particularly in the case of boats with modest windward performance, a southerly route, as described above, has certain attractions. Further west, one may find that SW winds, which predominate in summer west of meridian 50°W, will allow them to go on to the port tack around that point. Boats setting off on a southern route

should take their departure from Horta at WP AN1391. The landfall point for Halifax, in Nova Scotia, is WP AN1392. Boats bound for St John's, in Newfoundland, should make their landfall at WP AN1393 SE of Cape Race, before altering course for WP AN1394 off Cape Spear in the approaches to St John's.

The recommended time for this passage coincides with the start of the hurricane season in the Western Atlantic, so the weather should be observed carefully, especially as one approaches Bermuda, or if a stop there is being considered.

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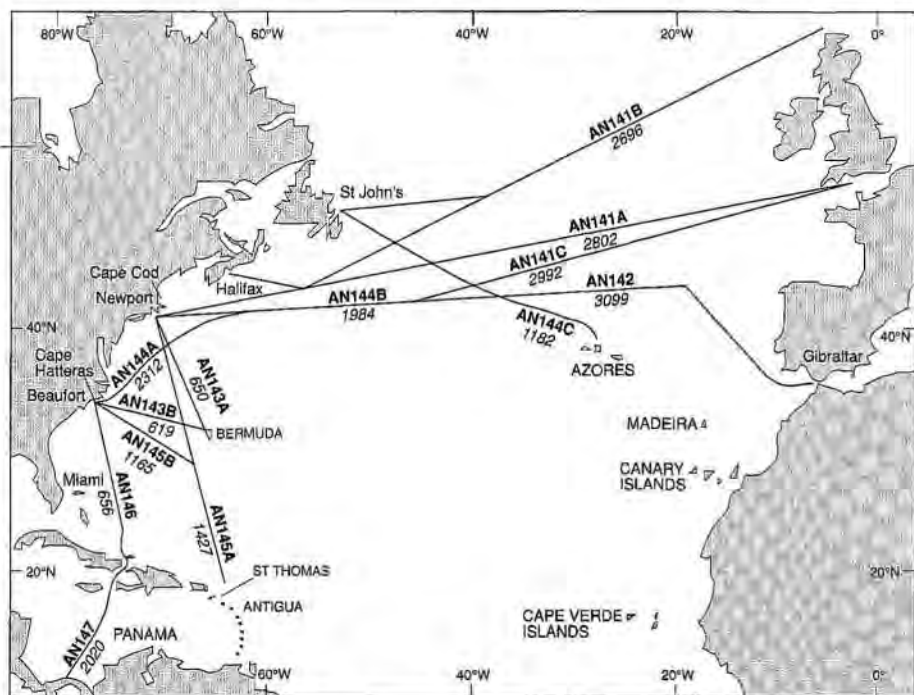
AN141 <i>North America to Northern Europe</i>	152
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AN143 <i>North America to Bermuda</i>	154
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AN146 <i>North America to Bahamas</i>	159
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The number of boats sailing nonstop to Europe along the higher latitudes has decreased considerably in recent years and most North American boats reach Europe via Bermuda and the Azores. For anyone planning a long offshore voyage from one of the ports north of Chesapeake Bay, whether to the Caribbean or Europe, the first landfall is usually Bermuda. Those heading for the Virgins or Lesser Antilles have a choice of an offshore passage, either via Bermuda or direct. If the port of departure is north of Cape Hatteras, a stop in Bermuda would not add too many miles, but from ports situated further south a direct course makes more sense. Beaufort in North Carolina is a favourite point of departure for the annual southbound exodus and the most common landfall is St Thomas in the US Virgins. Those who leave from ports south of the Carolinas are often tempted to beat their way through the Bahamas, which may not be a solution to everyone's taste as strong easterly winds are likely to be encountered most of the way. All the above passages to the Caribbean should be made after the beginning of November when the hurricane season has come to an end. An

alternative way of reaching the Caribbean by a longer but more attractive route is described at the beginning of this chapter, when routes in the North Atlantic are discussed (see page 37). Routes from Florida are described in AN110 (page 125).

Eastbound passages from North America are undertaken mostly in late spring or early summer, from May until July, when best conditions can be expected. Regardless of the destination, the Gulf Stream will have to be crossed at some point, and because of the difficulties associated with this it is advisable to obtain the latest information concerning the strength and direction of the Gulf Stream. The best sources are the Gulf Stream flow charts issued regularly by NOAA. Anyone leaving on a direct passage to the Caribbean must take into account the strength of the Gulf Stream as well as the possibility of strong northerly winds blowing against the current, a combination which can turn the passage into an extremely uncomfortable experience. If adverse conditions persist it is probably better to make for the nearest continental port and continue the voyage south inside the Intracoastal Waterway, a solution taken every year

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AN140 Atlantic routes from North America

by those who have either left the passage to the Caribbean too late or were not fortunate enough to meet the right conditions for this offshore passage. The problem is often compounded by the fact that, for many sailors, the passage to the Caribbean may be their first serious offshore passage. Naturally they regard this test with certain apprehension and, equally naturally, tend to wait for a perfect weather window to set off. Unfortunately the optimum time for southbound passages is relatively short and that hoped for perfect window may not occur, so the opportunity is missed and other alternatives need to be considered to reach their distant goal. Some of these alternatives are described in the section AN116 describing routes starting from Florida (page 130).

The area from Cape Hatteras to Cape Cod is in the region of variable winds and is also strongly affected by weather on the continental landmass, with winter northers and gales generated by fronts moving from west to east. Hurricanes can reach

up to 40°N, which is the region of New York, and their tails may affect areas even further north, particularly in late summer and autumn. Between Cape Hatteras and Cape Cod, summer weather is determined very much by the North Atlantic high and although winds are variable, there is a high proportion of SW winds. East of Cape Cod coastal weather is influenced by the landmass more than by the ocean, the weather systems moving generally in a west to east direction. Rainy-thunderstorms occur in June, July, and August and often there is coastal fog, especially in the mornings. A lot of local variations occur in this area with sea breezes on some coasts and frequent wind shifts.

The prevailing winds in the Cape Cod to Newfoundland area are SW or S, which veer to NW as depressions pass over. In summer there are few gales and the wind is lighter inshore than at sea. The area from Maine to Newfoundland and over the Grand Banks is affected by fog, particularly in the spring and summer. This is caused by a S or

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SW wind bringing warm moist air over the sea, which is kept cool by the Labrador Current. A careful lookout for the many fishing boats and lobster pots in this area must be kept when visibility is poor. A northerly wind tends to clear the fog. Also in

spring and summer up to July, when the polar ice is breaking up, icebergs are sometimes carried south into the area off Newfoundland. The US coast and Nova Scotia are normally out of the iceberg zone.

AN141 North America to Northern Europe

BEST TIME:	June to August			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4011 US: 121			
PILOTS:	BA: 27, 40, 59, 67, 68, 69 US: 140, 142, 145, 191			
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell Pilot to the English Channel Vol. 1.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN141A				
AN1411 Brenton 41°24'N, 71°16'W	AN1412 Nantucket 40°30'N, 69°30'W (AN1413) (39°00'N, 50°00'W)	AN1417 Lizard 49°55'N, 5°10'W	Falmouth 50°0.9'N, 5°04'W	2802
AN1414 off Halifax 44°25'N, 63°25'W	AN1415 Sable 43°30'N, 60°00'W AN1416 43°00'N, 50°00'W (AN1413)	AN1417 Lizard	Falmouth	2480
AN1418 off St John's 47°34'N, 53°40'W		AN1417 Lizard	Falmouth	1905
Route AN141B				
AN1411 Brenton	AN1415 Sable	AN1419 Wrath 58°40'N, 5°10'W		2696
AN1414 off Halifax	AN1415 Sable	AN1419 Wrath		2340
AN1418 off St John's		AN1419 Wrath		1821
Route AN141C				
AN1411 Brenton	AN1413	AN1417 Lizard	Falmouth	2992

A cold, wet, and foggy route at the best of times, at least it has the advantage of both favourable winds and current. The great circle route is the obvious choice for a fast passage to Northern Europe, but for destinations south of the Bay of Biscay some of the alternatives ought to be considered. These are described in routes AN123, AN124 (pages 137), as well as AN143 and AN144.

Having chosen the great circle route, some of the problems which affect this northernmost route must be considered first. There are two main causes

of concern for those who undertake this passage: fog and ice. Both of them are linked to the Labrador Current, a cold current that flows along the coasts of Newfoundland and Nova Scotia. Fog is caused by warm air blowing over the cold waters brought down from the Arctic by the Labrador Current which also carries icebergs south during the summer. As the North Atlantic warms up with the advance of summer, fog becomes less frequent and the icebergs also start melting, although they sometimes drift as far south as latitude 40°N.

Therefore the latter part of summer appears to be safer and the recommended time for this passage is August. This might be too late for those who intend to do some cruising in Northern Europe during the same summer and the alternative is either to leave earlier and brave the dangers or take a more southerly route (AN141C).

The great circle route from US ports passes south of Nova Scotia and Newfoundland from where it splits into a northern branch, going round the north of Scotland towards Scandinavia (AN141B), and a southern branch to the English Channel (AN141A). The most difficult parts of the voyage are the first few hundred miles until the concentration of fishing boats on the Grand Banks has been left behind and also the area with the highest risk of fog and icebergs, close to Newfoundland. For all the above reasons, but also because better sailing conditions will be found further south, the great circle course should not be joined before meridian 55°W is passed. Naturally, if conditions warrant it, the great circle course to the port of destination can be joined earlier, but in the absence of reliable weather information, it is safer to follow the above advice. In this case, boats leaving from Newport, and using as a departure point WP AN1411 off Brenton Reef, should sail first to WP AN1412 off Nantucket Shoal, to stay well clear of the various shoals. This suggestion also applies to boats leaving from New York. In late spring, or even early summer, the course may have to dip south to WP AN1413 and stay on this latitude until longitude 55°W is reached, as suggested earlier.

The initial course for boats leaving from Halifax, Nova Scotia, bound for the English Channel leads to WP AN1415 south of Sable Island. Only if there are no reports of ice on that latitude can the course be altered for the next WP AN1416. Otherwise it may be advisable to sail to WP AN1413, as suggested above. Boats leaving from St John's, Newfoundland, and also bound for the English Channel, are so far within the ice zone that passages early in the season should not be attempted unless one is confident that there is no such danger. Eastbound passages from St John's can join a great circle course directly.

The winds in late spring and early summer will

be westerly around 15-20 knots, occasionally higher. The frequency of gales in August is low for these latitudes and calms are rare. As the route passes well to the north of the Azores high, the weather should be outside of its direct influence, but there might be an effect if the high does move north. If the Azores high is located in its usual position, the weather is more likely to be affected by one of the lows moving eastwards across the Atlantic from North America to Europe. In higher latitudes, such lows can produce gale force NE or E winds. The favourable effect of the Gulf Stream becomes less noticeable eastwards of about longitude 40°W, where it changes its name to the North Atlantic Current.

Route AN141B, which is the great circle route passing north of Scotland, uses the same waypoints to WP AN1415, south of Sable Island. From there, if there are no reports of ice en route, a course can be set for WP AN1419 off Scotland's Cape Wrath. Boats leaving from Halifax should also use WP AN1415 before joining the great circle route to WP AN1419, whereas boats leaving from St John's can join that route directly.

Boats from the US east coast sailing the southern route (AN141C), should set an initial course for WP AN1413. The main objective of this is to avoid the southern limit of ice and, in early summer, it is recommended that the latitude of this waypoint is not passed. Occasionally, provided there is no danger of ice, it may be necessary to go to 40°N or even further north to reach an area of prevailing westerlies. The frequency of gales is lower to the south of the recommended route, but one should not be tempted to turn east too soon because of the danger of losing the westerlies as one enters the Azores high which extends furthest north in summer. The Gulf Stream runs along most of this route at a favourable rate of at least 1/2 knot. In the absence of reliable weather information it is therefore recommended to make the crossing in higher, rather than lower, latitudes. Hurricanes rarely affect this route east of Bermuda, but late summer passages are nevertheless discouraged because of the violent storms that occasionally occur in the eastern Atlantic after the middle of August.

AN142 North America to Mediterranean

BEST TIME:	June to July
TROPICAL STORMS:	June to November
CHARTS:	BA: 4011 US: 121
PILOTS:	BA: 27, 40, 59, 67, 68, 69 US: 140, 142, 145, 131
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot, Mediterranean Cruising Handbook.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1421 Brenton 41°24'N, 71°16'W	AN1422 Nantucket 40°30'N, 69°30'W AN1423 40°00'N, 55°00'W AN1424 40°00'N, 20°00'W AN1425 Vincent NW 37°00'N, 9°08'W AN1426 Hoyo 36°04'N, 6°20'W AN1427 Tarifa 35°59'N, 5°36'W	AN1429 Gibraltar 36°08'N, 5°22'W	Marina Bay	3099
	AN1428 Carnero 36°03'N, 5°25'W		36°09'N, 5°21'W	

Most of the suggestions made in route AN141 are also valid for passages to the Mediterranean. However, as better conditions can be expected around latitude 40°N, the route should stay as close as possible to this latitude. From the point of departure, such as AN1421 off Brenton Reef, a course should be set to pass through waypoints AN1422 and AN1423. In late spring or early summer the initial course should not go above 39°N. Depending on weather conditions, the crossing

should be made on or close to this latitude to WP AN1424. Having reached that point, the course can be altered for WP AN1425, 7 miles WSW of Cape St Vincent. For the rest of the passage, detailed instructions are given in routes AN124 (page 137) and AN16 (page 44). The latter should be consulted for details on tactics for negotiating the Strait of Gibraltar. Boats bound for the Mediterranean should also consult route M11 (page 449).

AN143 North America to Bermuda

BEST TIME:	May to June, November
TROPICAL STORMS:	June to November
CHARTS:	BA: 4403 US: 124
PILOTS:	BA: 68, 69, 70 US: 140, 147
CRUISING GUIDES:	<i>Yachting Guide to Bermuda.</i>

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WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
AN1431 Brenton 41°24'N, 71°16'W	AN1434 Gibbs 32°12'N, 64°55'W	AN1436 Bermuda 32°22'N, 64°38'W	St George's 32°22'N, 64°40'W	650
AN1432 Chesapeake 36°45'N, 75°45'W		AN1436 Bermuda	St George's	610
AN1433 off Beaufort 34°40'N, 76°40'W		AN1436 Bermuda	St George's	619
AN1431 Brenton	AN1435 Bermuda N 32°35'N, 64°50'W		St George's	627

Early summer passages from any port on the US east coast should not be too difficult as the prevailing SW winds are favourable, even if it may entail a close hauled passage for boats sailing out of ports north of New York. Provided a favourable forecast has been obtained before leaving, the crossing of the Gulf Stream should present no problems.

In the early summer the weather is usually pleasant and even if the winds are light, at least the weather is warm. The occasional depression forming over the Bahamas and then following a NE track can produce squalls and rough seas, but, at the recommended time, they are the exception rather than the rule. Later in the summer particular attention must be paid to hurricanes developing in the Caribbean as their tracks usually pass between Bermuda and the mainland. Because of this risk passages to Bermuda after the end of July are discouraged. September and October are the months with the highest incidence of hurricanes. Although the danger of hurricanes diminishes after the end of October, from early November onwards there is an increasing risk of encountering an early

winter norther which can produce extremely rough conditions when blowing against the Gulf Stream. Therefore passages in November should be carefully timed and the weather developing over continental USA watched closely.

Regardless of the port of departure, the Gulf Stream should be crossed at right angles and once clear of its influence, a course can be set for WP AN1434, five miles SW of Gibbs Hill at Bermuda's SW point. As it is easier to approach the island from the SW, the course runs parallel to the island as far as WP AN1436 to reach Town Cut leading into St George's Harbour. Boats approaching Bermuda from the NW may find it more convenient to make landfall at WP AN1435. Approaching the island from the north is more difficult as several dangers have to be left to starboard to reach that same WP AN1436, close to the Town Cut. The narrow channel, although well buoyed and lit, should not be used at night by anyone not familiar with the area. Bermuda Harbour Radio should be contacted on VHF channel 16 for pilotage information.

AN144 North America to Azores

BEST TIME:	May to July
TROPICAL STORMS:	June to November
CHARTS:	BA: 4011 US: 120
PILOTS:	BA: 59, 67, 68, 69 US: 140, 143
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN144A				
AN1440 off Beaufort 34°40'N, 76°40'W	AN1441 Azores 40°00'N, 32°30'W	AN1448 Flores 39°20'N, 31°18'W	Lajes 39°23'N, 31°10'W	2183
		AN1449 Faial 38°30'N, 28°50'W	Horta 38°32'N, 28°37.5'W	2312
Route AN144B				
AN1442 Brenton 41°24'N, 71°16'W	AN1443 Nantucket 40°30'N, 69°30'W			
	AN1444 40°00'N, 50°00'W			
	AN1441 Azores	AN1448 Flores	Lajes	1857
		AN1449 Faial	Horta	1984
		AN1448 Flores	Lajes	1857
		AN1449 Faial	Horta	1984
Route AN144C				
AN1445 off Halifax 44°25'N, 63°25'W	AN1446 Sable 43°30'N, 60°00'W	AN1448 Flores	Lajes	1472
		AN1449 Faial	Horta	1602
Route AN144D				
AN1447 off St John's 47°34'N, 52°40'W		AN1448 Flores	Lajes	1054
		AN1449 Faial	Horta	1182

The advantage of this direct route to the Azores over route AN125, which originates in Bermuda, is that the latitudes of prevailing westerly winds can be reached sooner. Directions for the initial course are similar to those given for routes AN141 and AN142. Having reached WP AN1444, the same directions apply for the continuation of the passage as for route AN125 from Bermuda (page 138). Boats leaving from ports to the south of Cape Hatteras (route AN144A) normally ride the Gulf Stream to latitude 40°N before turning east once steady westerly winds have been found. Although latitude 38°N has been mentioned as the recommended turning point, during the summer, when the Azores high extends farther north, consistent westerly winds will only be found in higher latitudes so one has to be prepared to go as far north as 40°N. For boats leaving from ports east of New York (AN144B), the area of prevailing westerlies can be reached sooner, although one should stay clear of the Nantucket Shoals, as suggested in route AN141, by using WP AN1443 as an intermediate point of reference. If weather conditions are favourable, the same latitude should be maintained as far as WP AN1441, 60 miles NW from Corvo and Flores, the westernmost islands in the

Azores. From this point, course can be altered for one's port of destination.

Boats bound for Lajes, on the SE coast of Flores, should make landfall at WP AN1448, off Ponta do Ilheus, the SW extremity of Flores and then follow the south coast of the island to Lajes. The recent improvements to Lajes have made it an attractive first port of call into the Azores. If bound directly for Horta, which continues to be the favourite Azorean destination, from WP AN1441 course should be set for WP AN1449, five miles SW of Ponta do Castelo Branco, and then sail along Faial's south coast, which is the recommended way to approach Horta. In strong SW winds, if Horta is approached from the north, allowance should be made for a strong contrary current in the channel between Faial and Pico.

From May to July, mostly SW winds can be expected for the first part of the passage. The danger of early hurricanes should be borne in mind especially if leaving from southern ports, but up to the middle of July the risk is reasonably low. A rhumb line course along a southerly route is only recommended if one is prepared to motor through the area of calms and variable winds that may be encountered in those latitudes. Directions

AN140 ATLANTIC ROUTES FROM NORTH AMERICA

for such a direct route are similar to those for the route from the Lesser Antilles to the Azores (route AN79 page 95). For boats leaving from Canadian ports, whether in Nova Scotia (AN144C) or Newfoundland (AN144D), a late spring or early summer start is not very attractive and for this reason most boats set off on a passage to the Azores and Europe in July or even August. The one risk to watch out for is a hurricane, because even if one can avoid the direct path of such a storm, one would still be affected by the strong winds and

swell. Therefore one should avoid leaving if there is any likelihood of a hurricane developing during the first week or ten days. This should be possible by consulting the weather charts for the entire North Atlantic, as the depressions which develop into tropical storms usually take a long time to reach maturity and are usually carefully tracked. In the eventuality of being caught out by a hurricane on the way to the Azores, it is safer to stay offshore and run with the wind and swell.

AN145 North America to the Eastern Caribbean

BEST TIME:	November (offshore) November to May (via Bahamas)			
TROPICAL STORMS:	May to November			
CHARTS:	BA: 4403, 4402 US: 124			
PILOTS:	BA: 68, 69, 70, 71 US: 140, 147			
CRUISING GUIDES:	<i>The Lesser Antilles, Cruising Guide to the Leeward Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN145A				
AN1450 Brenton 41°24'N, 71°16'W	AN1453 Culebrita 18°26'N, 65°10'W		Charlotte Amalie 18°23'N, 64°56'W	1427
AN1451 Chesapeake 36°45'N, 75°45'W	AN1453 Culebrita		Charlotte Amalie	1246
AN1452 off Beaufort 34°40'N, 76°40'W	AN1453 Culebrita		Charlotte Amalie	1165
Route AN145B				
AN1450 Brenton	AN1454 Anegada 18°45'N, 63°35'W		Virgin Gorda 18°27'N, 64°26'W	1467
AN1451 Chesapeake	AN1454 Anegada		Virgin Gorda	1308
AN1452 off Beaufort	AN1454 Anegada		Virgin Gorda	1234
Route AN145C				
AN1450 Brenton	AN1455 Barbuda 17°30'N, 61°30'W	AN1456 Antigua E 17°00'N, 61°40'W	English Harbour 17°00'N, 61°45'W	1556
AN1451 Chesapeake	AN1455 Barbuda	AN1456 Antigua E	English Harbour	1416
AN1452 off Beaufort	AN1455 Barbuda	AN1456 Antigua E	English Harbour	1348
Route AN145D				
AN1450 Brenton	AN1457 Sombrero 18°40'N, 63°30'W	AN1458 Martin 17°55'N, 63°22'W	AN1459 Antigua NW St John 17°10'N, 61°55'W	1565
AN1451 Chesapeake	AN1457 Sombrero	AN1459 Antigua NW St John		1407
AN1452 off Beaufort	AN1457 Sombrero	AN1459 Antigua NW St John		1334
	AN1458 Martin	AN1459 Antigua NW St John		

There are several alternatives to reach either the Virgin Islands or Lesser Antilles from ports on the east coast of the USA and Canada, and the ultimate choice depends mainly on the type of boat and the experience of the crew. The most direct route leads well offshore and should be attempted only with a thoroughly tested boat and crew. If the voyage starts from any port east of New York, a stop in Bermuda can be contemplated as it does not greatly lengthen the distance. However, as the frequency of gales in November around Bermuda is rather high, such a detour may not be necessarily the wisest choice. One solution is to make the passage to Bermuda earlier in the summer, spending some time there and carrying on to the Virgins or Lesser Antilles later in the year, although it must be stressed that the threat of hurricanes in Bermuda is very real in summer. Directions for southbound passages from Bermuda are described in routes AN126 and AN127 (page 140-1).

The timing for a direct passage to the Virgins (AN145A) is critical as a summer voyage carries the risk of hurricanes and a winter voyage that of northerly storms. Therefore the best time appears to be November, when the danger of hurricanes is low and winter gales are still rare. The winds down to about latitude 30°N are normally NW and especially when these are strong the Gulf Stream should be crossed as quickly as possible. If the winds are from SW, the starboard tack should be preferred as any ground lost to the east will be easily recuperated when the NE trade winds are found somewhere between latitude 22°N and 25°N. If this passage is made at the end of spring, easting should be made in the early part of the voyage to compensate for the SE slant of the trades later on. Making easting is less important in November when the predominant direction of the trade winds is NE.

Having passed through the area of variable winds, boats bound for the US Virgins should alter course for WP AN1453, eight miles NE of the light on Culebrita Island. Keeping at a safe distance to avoid the dangers off the western point of St Thomas, that island's south coast is followed to its main port of Charlotte Amalie. However, making landfall in the Virgin Islands from the northerly direction may be difficult as most dangers are unlit. The alternative (AN145B) is to make landfall on Sombbrero Island, which has a powerful light, and approach the Virgins from NE rather than try and make landfall directly on St Thomas, as suggested above. In such a case a course should be set for

WP AN1454, 15 miles NW of Sombbrero light at the entrance into Aneгада Passage. Arriving from this direction, the nearest port of entry in the British Virgins is at Virgin Gorda. Utmost caution should be exercised in this area because of the numerous dangers surrounding the Virgin Islands.

For boats bound for Antigua on a direct offshore route (AN145C), a direct course should be set for WP AN1455, 15 miles east of Barbuda, so as to approach Antigua well from windward and clear of any dangers. The course is then altered for WP AN1456 off Antigua's SE coast. Entry formalities can be completed at English Harbour. If, as suggested above, it is impossible to make sufficient easting to approach Antigua from windward, a course should be set for WP AN1457, 5 miles N of Sombbrero Island (AN145D). From there course is altered for WP AN1458 SW of St Martin and finally for WP AN1459 off Antigua's SW coast. From there the south coast is followed to English Harbour, unless one prefers to complete formalities in the capital St John, in which case course for the latter should be changed earlier.

Rather than take one of the offshore routes described above, some people prefer to make the southbound voyage through the Intra-coastal Waterway. This can be done during the summer so that one is ready to go offshore as soon as the hurricane season has come to an end. Having reached a port south of Cape Hatteras, such as Beaufort, it is strongly recommended to go offshore immediately. Leaving with a favourable forecast from a port such as Beaufort (AN145B) an easterly course should be steered to cross the Gulf Stream as quickly as possible after which a course can be set for the Virgins. To avoid beating against the trade winds it is best to set a course that intersects the meridian of the port of destination in about latitude 25°N. This means that the islands are approached from a better angle in relation to the prevailing wind.

Whereas a direct offshore route to the Eastern Caribbean from more northern ports, such as Beaufort, is feasible, trying to do the same from ports in Florida will entail a lot of windward work as the winds become more easterly as latitudes become lower. This is the reason why those intending to reach the Eastern Caribbean by an offshore route are urged not to leave on such a passage from ports south of North Carolina. Alternative routes from Florida to the Eastern Caribbean are described in AN116 (page 130).

AN146 North America to Bahamas

BEST TIME:	November (direct) November to April (from Florida)			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4403 US: 108, 124			
PILOTS:	BA: 68, 69, 70 US: 140, 147			
CRUISING GUIDES:	<i>Yachtsman's Guide to the Bahamas.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AN1461 Brenton 41° 24' N, 71° 16' W		AN1464 Salvador 24° 10' N, 74° 35' W	Cockburn Town 24° 03' N, 74° 51.5' W	1064
AN1462 Chesapeake 38° 45' N, 75° 45' W		AN1464 Salvador	Cockburn Town	774
AN 1463 off Beaufort 34° 40' N, 76° 40' W		AN1464 Salvador	Cockburn Town	656

A direct route to the Bahamas from ports north of Cape Hatteras should only be considered if the destination is in the Southern Bahamas because the route has to go a fair distance to the east to avoid the strength of the Gulf Stream. Mainly for this reason, many boats reach the Bahamas by covering at least part of the distance in the Intracoastal Waterway. The offshore section of the voyage is only attempted from one of the ports south of Cape Hatteras, such as Beaufort, Morehead City, or Charleston. There is a fairly narrow window for such a passage and the recommended time is November. An earlier start carries the risk of hurricanes, whereas a later start runs the risk of the winter northers which can produce dangerous conditions in the Gulf Stream. The frequency of hurricanes after the beginning of November is reasonably low and a good forecast obtained before departure should warn both of existing tropical depressions and of impending northers.

The course on leaving the coast should lead in an ESE direction so as to cross the Gulf Stream at right angles. One should proceed for at least 100

miles in this direction before changing course for the Bahamas. In light winds or calms, it is advisable to use the engine to move away quickly from the coast and the Gulf Stream. Perhaps the easiest landfall in the Bahamas is the island of San Salvador, which stands clear of all dangers and has a powerful light on its NE extremity, although a more convenient landfall is NW of the island, at WP AN1464. Entry formalities can be completed at Cockburn Town, the main settlement on the west side of the island, although the officials are often to be found at the airport. There is an anchorage off the settlement or a small marina one mile further north. Riding Rock Marina has a difficult entrance with a maximum depth of 7 ft at high tide. The GPS latitude of the entrance channel into the small marina has been reported as 24° 03.4' N. The marina can be contacted on VHF channel 6.

Although Bermuda is nowhere near the direct route, some people prefer to make the detour to that island and reach the Bahamas in this way. Southbound routes from Bermuda are described in AN127.

AN147 North America to Panama

BEST TIME:	May to June, November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 4012 US: 120			
PILOTS:	BA: 68, 69, 70, 7A US: 140, 147, 148			
CRUISING GUIDES:	<i>Cruising Guide to the Caribbean, Panama Canal Pilot's Handbook.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AN147A				
AN1471 Brenton 41°24'N, 71°16'W	AN1474 Salvador 24°10'N, 74°35'W			
	AN1475 Mira-Por-Vos 22°08'N, 74°25'W			
	AN1476 Maisi N 20°23'N, 74°05'W			
	AN1477 Navassa 18°25'N, 75°16'W	AN1478 Panama 9°26.25'N, 79°55'W	Cristobal 9°21'N, 79°55'W	2020
Route AN147B				
AN1472 Chesapeake 36°45'N, 75°45'W	AN1475 Mira-Por-Vos AN1476 Maisi N AN1477 Navassa	AN1478 Panama	Cristobal	1730
Route AN147C				
AN1473 off Beaufort 34°40'N, 76°40'W	AN1475 Mira-Por-Vos AN1476 Maisi N AN1477 Navassa	AN1478 Panama	Cristobal	1612

As the direct route from ports in North America to Panama has to pass through the Bahamas, few boats do it without stopping there. The best times are at the change of seasons and the recommended routes are described in AN146. The difficult part of a nonstop passage is the crossing of the Bahamas, where shallow banks, extensive reefs, and unpredictable currents call for accurate navigation. As suggested in AN146, it is best to sail directly to the Southern Bahamas (AN147A) and make landfall on San Salvador at WP AN1474. The route from there crosses the Southern Bahamas through the Crooked Passage, passing west of Acklins Island and through the Mira-Por-Vos Passage and WP AN1475. The route reaches the Windward Passage at WP AN1476, off Cuba's Cape Maisi. An alternative landfall in the Bahamas is at

Mayaguana, but as its main settlement Abrams Town is not a port of entry, San Salvador is preferable.

The trade winds are usually lost in the lee of Hispaniola and winds are often light in the Windward Passage but they are picked up again as one moves south. The remaining waypoints mark the route across the Caribbean Sea, which stays east of Jamaica and the reefs south of that island. Landfall in Panama is made at WP AN1478, at the entrance into the Panama Canal. Boats approaching the breakwaters at the entrance into Cristobal should call Traffic Control on VHF channel 12. Traffic lights regulate the passage between the breakwaters, but small boats may pass if they keep close to the side, both when passing through the breakwaters and in the shipping

channels. Further details about the Panama Canal are given on page 489.

The best months for the passage south are May-June and November, when favourable winds can be expected for most of the way and both the danger of hurricanes and winter northers is acceptably low. The second half of May and the first half of November are considered the best times for a nonstop passage to Panama. If leaving from one of the ports in North Carolina (AN147C), a

favourable forecast is essential for the first leg across the Gulf Stream, after which winds should be E or SE for most of the way to the Bahamas. For the passage through the Caribbean, favourable winds will also be found in winter, from December to April, although the strong trade winds can make sailing in the Western Caribbean uncomfortable. The route south of the Bahamas is described in detail in AN114 (page 129).

6

TRANSEQUATORIAL ROUTES IN THE ATLANTIC

The best way to sail from one hemisphere to the other has preoccupied mariners ever since early explorers discovered the zone of calms that separates the trade wind systems of the two oceans. 'The well known equatorial embarrassments' is how Alexander George Findlay refers to the doldrums in his *Memoir of the Northern Atlantic Ocean* published last century, a comprehensive book in which he tries to bring together all that was known at the time about the wind systems of the North Atlantic. The best strategy for tackling the doldrums is discussed in great detail, because fast passages across the equator were still of utmost importance to the masters of sailing ships linking Europe and North America with the rest of the world before the opening of the two great canals and the proliferation of powered vessels.

The first meteorologist who tried to put wind and weather observations on a proper scientific basis was an officer in the US Navy, Captain Matthew Fontaine Maury, who started collecting weather information in a methodical way in the early part of the nineteenth century and originated the pilot charts. Although primarily concerned with the weather of the North Atlantic and the best ways to speed up passages between the United States and Northern Europe, Captain Maury's research also dealt with passages across the equator. The main dilemma faced by ships plying between the two hemispheres was where to cross the doldrum belt. It had been known for a long time that the Atlantic doldrums have a triangular shape with their base lying along the African coast, between the Cape Verdes and the equator, and

becoming narrower to the west. Therefore by crossing the doldrums well to the west they may be traversed in a shorter distance.

As a result of Captain Maury's work, based on thousands of observations obtained from the mariners whom he had persuaded to fill in special logbooks provided by him, it was suggested that the equator should be crossed between the meridians of 30°W and 31°W. As these recommendations were primarily directed at vessels sailing from North America to either Cape Horn or the Cape of Good Hope, the directions were later modified for transequatorial voyages originating in Europe so as to take full advantage of the seasonal changes of weather which affect the doldrums. Specific directions for each month are necessary not only because of the seasonal movement of the ITCZ but also because the direction of the SE trade winds tends to be more southerly when the sun is north of the equator than when it is south.

Another debate between masters of south-bound sailing vessels was the best way to sail around the Cape Verde Islands, whether to westward or between the archipelago and the African coast. Taking up the challenge of Captain Maury's arguments in favour of a westerly crossing of the equator at all times of the year, the Royal Netherlands Meteorological Institute published a comparative study of the routes followed by a number of Dutch sailing ships, both inside and outside of the Cape Verde Islands. The passage times of the 455 Dutch vessels were then compared with the times taken by 144 American vessels, many of them clippers, which had also chosen either the

inside or outside route on their voyages across the equator. The results of the combined experience of 599 vessels makes fascinating reading, even if the conclusions are not as clear cut as expected. Many more ships (340 Dutch, 111 American) decided to stay west of the islands than east (114 Dutch, 34 American), but the mean times showed only one day in favour of those that went outside. It does appear that the western track is to be preferred and the only time when the inside passage might be advantageous is between December and February, but the advantage is so small that the final decision as to which route to pursue should be determined by other considerations, which will be discussed in connection with the relevant routes.

The controversies caused by the Atlantic dol-

drums continue to this day and the dilemma has still to be resolved. The optimum strategy for southbound transequatorial routes is a major consideration for the skippers and navigators of the various round the world races, who rack their brains over which route will give them the best run to either the Cape of Good Hope or the Horn just as the masters of yesterday's clippers did before them. However, with ever improving satellite observations, the doldrums might finally give up their secrets and land based weather routing services can now advise even small sailing boats on the best way to go. Much of the fun and excitement will be taken out of route planning, but at least those 'equatorial embarrassments' will cease to be a nuisance.

AT10 SOUTHBOUND ROUTES

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AT13 <i>North America to South Africa</i>	167
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AT15 <i>Cape Verde Islands to Brazil</i>	169
AT16 <i>West Africa to Brazil</i>	169
AT17 <i>Lesser Antilles to Brazil</i>	170

The best longitude to cross the equator depends very much on the position of the Intertropical Convergence Zone at the time of the passage. Fortunately satellite pictures show its exact position, which can help those with access to this data to decide on the best strategy. The ITCZ changes not only its location but also its shape, being narrower in one area and wider in another. Being able to cross it at, or near, its narrowest part can be a great advantage and the results of several recent races were decided on the equator.

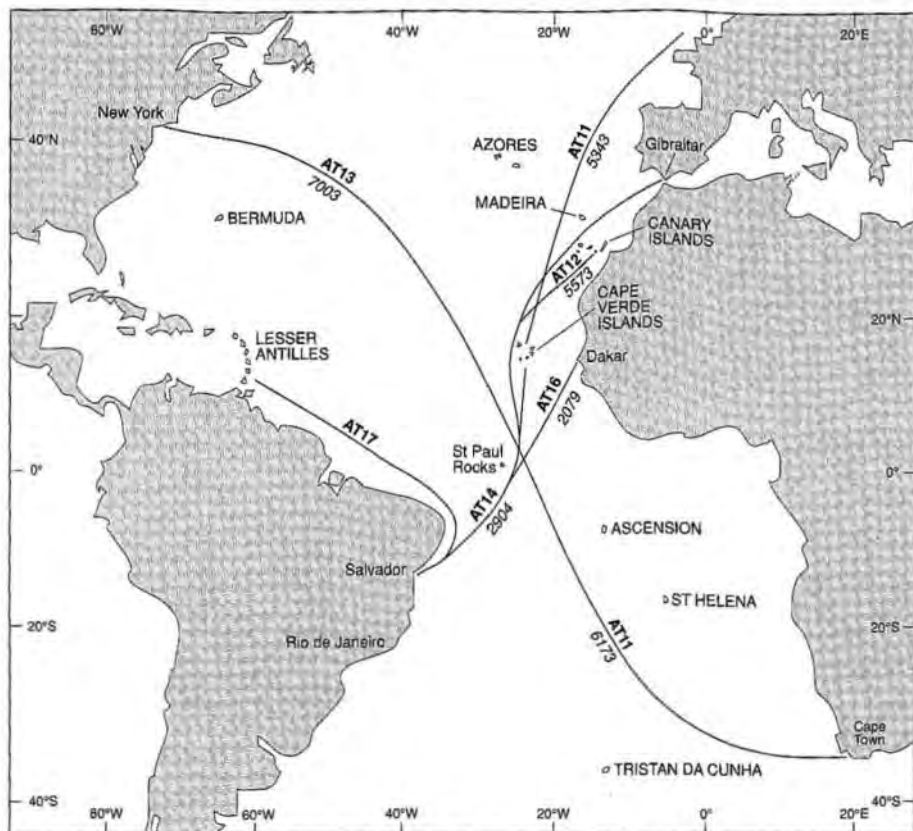
Whereas racing boats usually sail nonstop over long distances, their requirements are very different from those of cruising sailors whose passages are influenced by many considerations, of which speed is not necessarily the most important. Immediate cruising plans, proximity of convenient provisioning ports, and a host of other factors may have to be weighed before a final decision is made as to the best course of action.

As the great circle route from Europe to the South Atlantic passes close to the Cape Verde Islands, between January and April one should try and pass

close to the west of the islands by keeping along meridian 26°W. The alternative route inside the Cape Verde Islands will be discussed later. At this time of year southerly winds will be met around latitude 4°N and the equator should be crossed between longitudes 26°W and 28°W. Between May and July the same directions apply, but an attempt should be made to make some easting below the Cape Verde Islands so as to cross the equator at 25°W or 26°W.

The transequatorial routes are influenced from the middle of July onwards by the SW monsoon, which blows on the African side of the Atlantic between the equator and the Cape Verde Islands. During these months easting can be made with the help of the SW winds south of latitude 10°N and the equator should be crossed along meridian 23°W. After August the crossing points move gradually west, being 25°W in September and 27°W or 28°W in October. During these months southerly winds may be met between 7°N and 8°N. In November and December it is advisable to make some easting south of the Cape Verde Islands, so as to cross

TRANSEQUATORIAL ROUTES IN THE ATLANTIC



AT10 Southbound routes

meridian 25°W in about 6°N, from where the tack giving most southing should be taken to enable the equator to be crossed not further west than 29°W.

These instructions are only guidelines, because conditions vary from year to year and a different strategy might have to be applied if the SE trades are met further north. For a southbound voyage across the doldrums the most convenient place to cross the doldrums is not the only consideration,

for it is also important to have sufficient easting in hand to be able to keep the SE trades on the port tack past the bulge of South America.

Because on some routes intermediate waypoints cannot be given, only departure and destination waypoints are indicated. Therefore the distances shown are great circle distances unless otherwise indicated.

AT11 Europe to South Africa

BEST TIME:	October to January			
TROPICAL STORMS:	None			
CHARTS:	BA: 2127			
	US: 22, 120			
PILOTS:	BA: 1, 2, 5, 22, 27, 67			
	US: 121, 123, 140, 143, 191			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT110 Lizard 49°55'N, 5°10'W	AT111 Finisterre 44°00'N, 10°00'W	AT116 Table S 34°00'S, 18°20'E	Cape Town 33°55'S, 18°26'E	6173
AT112 Gibraltar 36°08'N, 5°22'W	AT113 Espartel 35°50'N, 5°57'W	AT115 20°00'N, 26°00'W	Cape Town	5573
AT114 Vilamoura 37°01'N, 8°08'W	AT115	AT116 Table S	Cape Town	5503

The optimum time to round the Cape of Good Hope limits the departure from Europe to one or two months. Most favourable conditions around the tip of Africa can be expected between December and February and therefore boats bound for Cape Town should plan to arrive off the Cape of Good Hope during that period. Therefore, the best time indicated above refers to passing the actual Cape and not to the entire passage. Because a winter departure from Northern Europe could hardly be recommended, it is presumed that boats setting off on this passage would either arrange to leave earlier and stop somewhere en route, or leave from a place in Southern Europe, such as Gibraltar or Vilamoura, from where a winter departure should pose less of a problem.

Directions for boats leaving the English Channel are similar to those described in AN13 (page 42). Having crossed the Bay of Biscay, skippers of southbound boats are faced with the dilemma of whether to take an easterly or westerly route. The winner of the first leg of the Whitbread Round the World Race in 1993 was decided by the choice of route and therefore the strategy should be based on the latest weather prognosis available. An easterly route will pass east of the Canaries and, depending on the time of year and expected weather conditions, either east or west of the Cape Verde Islands. See also routes AN18 and AN 52 (pages 46 and 74).

Those who have decided on a westerly route should make some westing on leaving the English Channel and set a course to pass west of Madeira. A decision will have to be taken at that point whether to go inside or outside the Cape Verde Islands and the various alternatives are described in AT10. Steadier winds are usually found on the west side of the Cape Verdes, and if such a route is taken some easting must be made south of the islands so as to arrive in the SE trades at a better angle.

Boats leaving from ports in Southern Europe should follow directions as for AN32 as far as the Canary Islands from where the same directions apply as for AT12. If a nonstop passage is preferred, the route from Gibraltar passes between Madeira and the Canaries and joins the route from Northern Europe in longitude 20°W (WP AT115). Normally the SE trades will have been found by the time the equator is crossed and in November–December they usually extend to latitude 5°N. At this time of year the recommended longitude for crossing the equator is between 27°W and 29°W. Although such a crossing normally benefits both from better winds and a narrower belt of doldrums, some people prefer to make more easting north of the equator and carry this advantage through into the SE trades. The risk of such an action is the risk of having to cross a wider band of doldrums.

TRANSEQUATORIAL ROUTES IN THE ATLANTIC

South of the equator the object is to make as much easting as possible while still in the SE trades, which usually reach as far south as 23°S. Beyond the southern limit of the trades the winds are variable. Between 25°S and Cape Town the predominant direction of the winds during summer is northerly so that it should not be too difficult to make easting in these latitudes. However, because there is a much higher proportion of easterly winds in the eastern half of the South Atlantic, such easting should not be made too early. Having lost the trade winds, the route loops towards the Cape of Good Hope crossing meridian 20°W in about 30°S, 10°W in 32°S, and 0° in 35°S. The rest of the voyage will be made on the latitude of Cape Town. On nearing

the South African coast, care must be taken not to be swept northward by the strong current. Ideally Cape Town should be approached from the SW.

Occasionally the SE trades extend further south and make it difficult to make sufficient easting above latitude 30°S. In such a case the route might have to take a more southerly dip and pass close to Tristan da Cunha. A stop in this remote and windswept island is well worth a small detour and the warm welcome from its lonely inhabitants will make up for the rough anchorage. As the main anchorage is exposed, it must be left if the weather deteriorates. See also routes AS21, AS22, and AS23 (pages 188, 189 and 190).

AT12 Canary Islands to South Africa

BEST TIME:	October to January			
TROPICAL STORMS:	None			
CHARTS:	BA: 2127			
	US: 22, 120			
PILOTS:	BA: 1, 2, 5			
	US: 121, 123, 140, 143			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT120 Las Palmas 28°07'N, 15°24'W	AT121 Canaria S 27°25'N, 15°30'W			
	AT122 20°00'N, 26°00'W	AT123 Table S 34°00'S, 18°20'E	Cape Town 33°55'S, 18°26'E	4889

As the route from Europe to Cape Town passes close to the Canaries, most boats which are not actually racing stop in these islands on their way south. Such a stop allows a departure from Europe during the autumn and the subsequent passage to South Africa can be made when the time is right. For those who are already underway, a stop in either the Canaries or the Cape Verdes is not always justified, particularly in winter when it is better to cross the equator further west. See also routes AN52 and AN53 if planning to stop in either the Cape Verdes or West Africa (pages 74 and 75).

On leaving the Canaries the direct route runs

SSW and passes close to the NW of the Cape Verde Islands. This route to the west of the Cape Verdes is to be preferred between October and January, when steadier winds are found west of those islands. Directions concerning the longitudes in which the equator should be crossed are given in AT10. South of the equator similar directions apply as for route AT11.

Although the route crosses a potential breeding ground for hurricanes to the west of the Cape Verde Islands, these storms rarely reach hurricane force while they are still developing, so the passage can be made at any time of the year.

AT13 North America to South Africa

BEST TIME:	November			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 2127			
	US: 22, 120			
PILOTS:	BA: 1, 2, 5, 69, 70			
	US: 121, 123, 124, 140			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT131 Chesapeake 36°45'N, 75°45'W	AT132 35°00'N, 45°00'W AT133 5°00'N, 25°00'W			
	AT134 30°00'S, 30°00'W	AT135 Table S 34°00'S, 18°20'E	Cape Town 33°55'S, 18°26'E	7003
AT130 Brenton 41°24'N, 71°16'W	AT132 AT133 AT134	AT135 Table S	Cape Town	7980

As in the case of boats leaving from Europe, the time of departure from the US east coast is dictated by the best time for rounding the Cape of Good Hope, which is between January and March. If the voyage is to terminate in Cape Town, the time of arrival is less crucial and the passage can be made at almost any time, although the winter months in the Cape area, from May to September, are best avoided.

A good departure time from any port on the US east coast is the beginning of November. Such a departure should avoid both the first of the winter northers and the risk of a late hurricane. As the NE trade wind belt will have to be traversed across its entire width, it is preferable to make as much easting as possible along latitude 35°N, where NW winds prevail in November. After meridian 45°W has been crossed (WP AT132), the route turns gradually SE to pass close to the west of the Cape Verde Islands. Some easting should be made south of the Cape Verdes so that latitude 5°N is crossed in the vicinity of the 25°W meridian (WP AT133). The SE trades will be met at about this latitude and the recommended easting allows the equator to be

crossed on the port tack. The point where the equator is crossed is governed by the width and position of the ITCZ and AT10 describes the optimum longitudes in which the narrowest band of doldrums can be expected at different times of year. On a passage to Cape Town, however, the skipper may decide to carry his easting across the equator, even if a wider doldrum belt has to be crossed and make use of the engine if necessary. Arriving in the South Atlantic further east will ensure that the SE winds will be taken at a better angle. Otherwise, for the recommended time of year, the equator should be crossed between longitudes 27°W and 29°W.

The SE trades are crossed at the best angle that the windward performance of the boat will permit. The southern limit of these trades extends normally to a line joining the Cape of Good Hope to the Brazilian island of Trinidad. The route continues SE into an area of variables to WP AT134. Roughly the same course should be maintained until latitude 35°S is reached. The rest of the passage to Cape Town should be sailed along this latitude. See also routes AT11, AS22, and AS23 (pages 165, 189 and 190).

AT14 Canary Islands to Brazil

BEST TIME:	September to February			
TROPICAL STORMS:	None			
CHARTS:	BA: 4012, 4022			
	US: 22, 120			
PILOTS:	BA: 1, 5			
	US: 121, 124, 140, 143			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT140 Las Palmas 28°07'N, 15°24'W	AT141 Canaria S 27°25'N, 15°30'W			
	AT142 20°00'N, 26°00'W			
	AT143 Noronha N 3°40'S, 32°28'W		Fortaleza 3°43'S, 38°29'W	2601
AT140 Las Palmas	AT141 Canaria S			
	AT142			
	AT143 Noronha N	AN144 Bahia 12°55'S, 38°25'W	Salvador 12°58'S, 38°30'W	2904
AT140 Las Palmas	AT141 Canaria S			
	AT142			
	AT143 Noronha N	AN145 Rio 22°50'S, 43°05'W	Rio de Janeiro 22°55'S, 43°12'W	3554

The timing of this passage is dictated primarily by the preferred time of arrival in Brazil, rather than by sailing conditions expected en route. The majority of those who make this passage attempt to be in Brazil for Carnival, which means arriving in Salvador (Bahia) or Rio de Janeiro before the beginning of February.

The passage across the doldrums presents a major dilemma, with opinions divided over the best place to cross the equator. The first decision, however, is whether to sail inside or outside the Cape Verde Islands after leaving the Canaries. If a stop in either the Cape Verde Islands or in West Africa is not being considered, it is probably better to keep slightly to the west of the Cape Verde Islands (WP AT142). Depending on the time of year, the NE trades will be lost somewhere between 10°N (September) and 4°N (December). As the Atlantic doldrum belt narrows towards the west, it is more logical to try and cross it nearer the Brazilian coast. Boats crossing the doldrums near the African coast normally have to go much farther in search of the SE trade winds than those which cross further west.

The width of the doldrums fluctuates greatly according to season and longitude, being anything from 100 to 400 miles wide. Southbound vessels normally find the SE trade winds between the equator (July) and latitude 3°S (January), although winds with a southerly component may be encountered anywhere south of 10°N.

A popular stop for boats en route to Brazil is Fernando de Noronha, a small island off the coast of Brazil. Those intending to stop there can make landfall NE of the island at WP AT143, which has been listed as an intermediate waypoint. Although not an official port of entry, boats are allowed to make a short stop there. A convenient port of entry into Brazil, just south of the equator, is Fortaleza. Other landfalls and possible destinations listed are Salvador and Rio de Janeiro. It should be pointed out that between October and February NE winds prevail along the Brazilian coast between Cape São Roque and Cape Frio, making southbound passages easy, also helped by the SW setting current. Sailors are reminded that most foreign nationals visiting Brazil must arrive with a valid visa.

AT15 *Cape Verde Islands to Brazil*

BEST TIME:	October to February			
TROPICAL STORMS:	None			
CHARTS:	BA: 4215, 4202 US: 22, 106			
PILOTS:	BA: 1, 5 US: 124, 143			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT150 Vicente 16°53'N, 25°00'W	AT151 Noronha N 3°40'S, 32°28'W	AT152 off Fortaleza 3°40'S, 38°27'W	Fortaleza 3°43'S, 38°29'W	1672
AT150 Vicente	AT151 Noronha N	AT153 off Recife 8°00'S, 34°49'W	Recife 8°04'S, 34°52'W	1610
AT150 Vicente	AT151 Noronha N	AN154 Bahia 12°55'S, 38°25'W	Salvador 12°58'S, 38°30'W	1973

Suggestions regarding the optimum point for crossing the equator are given in AT10. If the destination in Brazil is between Cape São Roque and Cape Frio, the equator can be crossed further west than the recommended crossing points for routes which continue towards South Africa. However, the equator should not be crossed further west than 30°W, as this might mean beating against the SE trades south of the equator unless this passage is made between October and February, when NE winds prevail between Cape São Roque and Cape Frio.

During the favourable season, the winds along the Brazilian coast are NE and the current sets SW, making it easy to reach any port along this stretch of coast. Between March and September the winds are predominantly SE and the current sets NE. This makes it necessary to make southing well off the coast and attempt to make landfall to windward of

the port of destination. Coming from the north it is advisable to plan to arrive in the more southern ports between October and February, when the winds are NE, and sail up the coast during the rest of the year, when the SE trades take over.

The rocks of St Peter and St Paul should be approached with extreme caution as they are often difficult to see until very close to them. Depending at which point the Brazilian coast is approached, a popular first stop is Fernando de Noronha, a small island off Cape São Roque. Those planning to stop there should make landfall NE of the island at WP AT151. Although not an official port of entry, boats are allowed to make a short stop there. A convenient port of entry, just south of the equator, is Fortaleza. Other landfalls and possible destinations listed are Recife and Salvador.

AT16 *West Africa to Brazil*

BEST TIME:	October to February			
TROPICAL STORMS:	None			
CHARTS:	BA: 4215, 4202 US: 22, 106			
PILOTS:	BA: 1, 5 US: 124, 143			

TRANSEQUATORIAL ROUTES IN THE ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT161 Cap Vert 14°45'N, 17°35'W				
AT162 Banjul 13°35'N, 16°55'W	AT163 Noronha N 3°40'S, 32°28'W	AT164 off Fortaleza 3°40'S, 38°27'W	Fortaleza 3°43'S, 38°29'W	1778 1751
AT161 Cap Vert AT162 Banjul	AT163 Noronha N	AT165 off Recife 8°00'S, 34°49'W	Recife 8°04', 34°52'W	1716 1689
AT161 Cap Vert AT162 Banjul	AT163 Noronha N	AN166 Bahla 12°55'S, 38°25'W	Salvador 12°58'S, 38°30'W	2079 2052

West Africa is becoming a more popular destination and many boats that cruise there continue their voyage to Brazil before sailing on to the Caribbean. The transequatorial passage requires careful planning as the doldrum belt in the proximity of the African coast can be 400–500 miles wide. Even if one is prepared to try and motor through it, a power assisted passage through the doldrums can

be very uncomfortable because of the confused swell generated by the trade wind systems meeting at that point. It is therefore recommended to try and stay with the NE trades north of the equator and only cross it in longitude 29°W or 30°W. A more westerly crossing point is not advisable if making for Salvador because of the risk of headwinds south of the equator. See also AT10 and AT15.

AT17 Lesser Antilles to Brazil

BEST TIME:	November to February
TROPICAL STORMS:	None
CHARTS:	BA: 4216, 4202 US: 22, 108
PILOTS:	BA: 5, 7A, 71 US: 124, 147, 148

The strong NW setting Guyana current dissuades most people from undertaking this direct passage, and those who have attempted it in the past have preferred to take an offshore route. However, by staying close inshore, it is possible to avoid the worst of the current. The best place to start this voyage is in Trinidad from where the coast of South America should be followed by staying close to or even inside the 10 fathom line. Because of the extensive continental shelf, shallow waters reach far offshore allowing one to sail relatively long tacks. Occasionally a favourable countercurrent will also be found. Naturally, the help of a powerful engine will come in useful and also the full range of coastal charts. As one approaches the mouth of the Amazon, it is advisable to move offshore to avoid the worst of the river currents.

Past Cape São Roque, conditions during the recommended season improve dramatically as the

winds along the Brazilian coast are NE between October and February. The current is also favourable as it sets SW, making it easy to reach any port along this stretch of the coast. Between March and September the winds are predominantly SE and the current sets NE. For southbound boats during this period it thus becomes necessary to sail well off the coast where the chances of finding favourable winds are better.

The logical departure point for the southbound passage is Trinidad. Although enjoying NE trade winds for most of the year, the more southerly position of Trinidad and its proximity to the mainland coast does lessen their effect in the summer months from June to November, which is also the rainy season. A SE wind sweeps across the plains bordering the Gulf of Paria, building up a sea every afternoon in the gulf. Sea conditions are generally rough near the island due to the clashing of

winds and currents setting strongly out of the Gulf of Paria and around the north coast of the island. The current in the Dragon's Mouth can have northerly sets of 5 knots and seldom sets south. Being south of the hurricane area, Trinidad rarely suffers any serious storms and this century only one tropical storm has affected the island.

The three former Guyanas, British (Guyana), Dutch (Suriname), and French (Cayenne) will be passed on the way south. This region of the South American continent lies mainly in the belt of the NE trades, although the SE trade winds do penetrate into the area from August to October when the ITCZ moves north. May to July is the wettest season, September and October the driest months. The NE trade winds are strongest from January to March with a more northerly component earlier in the season and more easterly later on. From May through to July there are more calms and frequent squalls as the winds gradually change through ENE to ESE. When established, the SE trade winds are not very strong and the change back to the NE

in late October or early November occurs more suddenly and without the squalls that characterise the other change of season. Near to the coast the winds decrease at night and pick up again in the morning, usually the earlier in the day this occurs the stronger the wind will be that day. Land breezes from SW to NW can occur close to the coast, especially towards the latter part of the year, but they do not last long. The only official port of entry into Guyana is its capital Georgetown (6°49'N, 58°11'W). For Suriname, the port of entry is the capital Paramaribo (5°50'N, 55°10'W), approximately 13 miles up the Suriname River. Entry formalities in Cayenne are completed at Degrad des Cannes (4°51'N, 52°16'W), although southbound boats may be able to stop without clearing in at the Iles du Salut (5°15'N, 52°35'W), just inside the border between Suriname and Cayenne as one comes south. The first official port of entry into Brazil, just south of the equator, is São Luis Maranhao (2°30'S, 44°20'W).

AT20 NORTHBOUND ROUTES

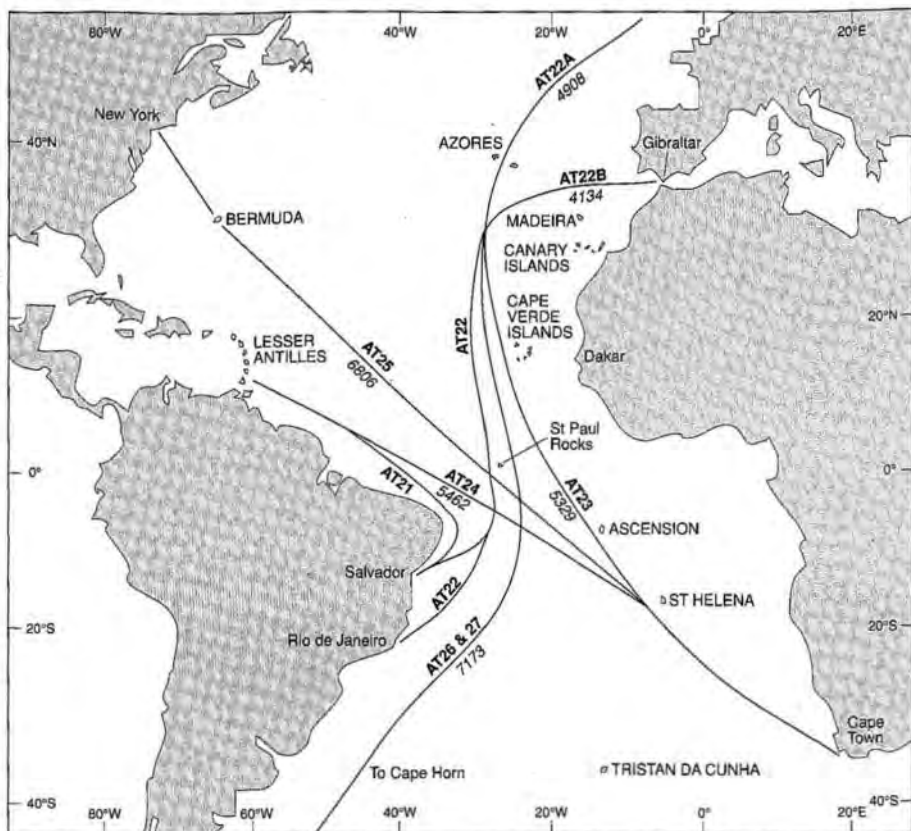
AT21 <i>Brazil to Lesser Antilles</i>	172
AT22 <i>Brazil to Europe</i>	173
AT23 <i>South Africa to Azores</i>	174
AT24 <i>South Africa to Lesser Antilles</i>	175
AT25 <i>South Africa to North America</i>	176
AT26 <i>Cape Horn to Europe</i>	177
AT27 <i>Cape Horn to North America</i>	178

The transequatorial strategy for northbound vessels is somewhat less daunting than the one applied by boats heading south and the point where the equator should be crossed is dictated by the locations of the ports of departure and destination. As most boats sailing north from Cape Town call at St Helena, the best course from there is to sail west of Ascension Island so as to cross the equator between longitudes 25°W and 30°W. In July and August, the equator should be crossed further east, between longitudes 20°W and 25°W, to ensure better winds north of the equator. The longitude of crossing depends greatly on the route that will be pursued in the North Atlantic, as a more easterly crossing will ensure a better slant in the NE trade winds on the subsequent leg to the Azores.

However, for boats bound for the Caribbean, Bermuda, or the US east coast, a more westerly crossing of the equator is recommended to take advantage of the favourable current.

From recent reports it appears that boats bound for the Caribbean from the South Atlantic made better times by crossing the equator further west, between longitudes 37°W and 39°W. A counter-current was reported north of the equator in approximately 6°00'N, 49°00'W and the favourable NW setting current was found around 8°00'N, 55°00'W. The favourable current can be found earlier by closing with the Brazilian coast, but this means sailing through shallow waters and calls for very careful navigation. Therefore it may be preferable to stay offshore.

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AT20 Northbound routes

AT21 Brazil to Lesser Antilles

BEST TIME:	March to June
TROPICAL STORMS:	June to November
CHARTS:	BA: 4216, 4202 US: 22, 108
PILOTS:	BA: 5, 7A, 71 US: 124, 147, 148
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Cruising Guide to Trinidad and Tobago.</i>

Northbound passages from ports in Southern Brazil are hampered by the strong NE winds and SW current, which occur between October and February. Passages during this time from ports south of Recife are best avoided. If the passage cannot be undertaken at a better time, the only solution is to stand well offshore until the SE trades are found and then make northing with their help. Boats coming from ports south of Rio de Janeiro will find better conditions between March and September when the prevailing winds are from the SE. If an inshore passage from southern ports is preferred, care must be taken when passing between the Abrolhos Islands and the mainland as the charts are inaccurate and the reefs more extensive than charted. If the islands are passed offshore, caution must also be exercised as the reefs extend about 35 miles offshore.

From ports north of Recife (Pernambuco), the passage to the West Indies can be made at any time of the year, although arriving there during the hurricane season should be avoided. Winds along the north coast of Brazil are always favourable and the current sets strongly to the northwest. The waters along this coast of Brazil are often very muddy from the Amazon, and as depths are shallow a good distance offshore must be kept as the colour of water gives no indication of its depth. The extent of the doldrums varies with the time of year, being wider during the northern summer. An area of variable winds, calms, and squalls normally extends from the equator in longitude 30°W to about latitude 3°N-5°N in longitude 38°W. Weather condi-

tions along the coasts of Guyana and Trinidad are described in route AT17.

Northbound boats seldom sail nonstop all the way to the Caribbean and there are several interesting places worth visiting en route in one of the three former Guyanas, French (Cayenne), Dutch (Suriname), and British (Guyana). Entry formalities in Cayenne are completed at Degrad des Cannes (4°51'N, 52°16'W). Formalities can also be completed at Kourou. To enter the river on which Kourou is located, landfall should be made at the first leading buoy. Its GPS position has been reported as 5°12.9'N, 52°36.4'W. Interesting places to visit nearby are the Iles du Salut and the old French penal colony. The recommended anchorage is located at 5°17'N, 52°35'W.

The port of entry for Suriname is Paramaribo (5°50'N, 55°10'W), approximately 13 miles up the Suriname River, where boats now clear in at the new harbour, Nieu Haffen. The least visited of the three countries is Guyana itself, where the only official port of entry is its capital Georgetown (6°49'N, 58°11'W). Boats bound for Trinidad will have to negotiate the Serpent's Mouth, the narrows separating the island from the mainland, to reach one of the ports of entry, of which perhaps the most convenient is Point Fortin (10°11'N, 61°41'W). Trinidad Coast Guard should be contacted on VHF channel 16 as soon as territorial waters are entered. Boats not intending to stop in Trinidad itself will find a more convenient port of entry at Scarborough (11°11'N, 60°44'W), the capital of Tobago.

AT22 Brazil to Europe

BEST TIME:	April to September
TROPICAL STORMS:	None
CHARTS:	BA: 2059, 4202 US: 22, 120
PILOTS:	BA: 1, 5, 22, 27, 67 US: 124, 140, 143, 191
CRUISING GUIDES:	<i>Cruising Association Handbook, Shell's Pilot to the English Channel Vol 1, Yacht Scene, East Spain Pilot.</i>

TRANSEQUATORIAL ROUTES IN THE ATLANTIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route AT22A				
AT220 Rio 22°50'S, 43°05'W	AT221 Horta 38°32'N, 28°37'W			
	AT222 Pta Delgada 37°44'W, 25°40'W	AT223 Lizard 49°55'N, 5°10'W		4908
Route AT22B				
AT220 Rio			AT224 Gibraltar 36°08'N, 5°22'W	4134

Northbound passages from Brazilian ports south of Cape Frio should avoid the period October to February, when NE winds prevail along the coast. During this time, the normal practice is to take a long tack offshore until well inside the SE trades. This will then make it possible to weather Cape São Roque, at the eastern extremity of Brazil. After sufficient easting has been made, the course can be altered to northward so that the equator is crossed between longitudes 28°W and 30°W.

From April to September northbound passages are much easier and the equator should be crossed as far east as possible so as to enter the NE trades at the most favourable slant. North of the equator the route runs close to the west of the Cape Verdes and on to the Azores, which should be always

passed to the west if the vessel is bound for Northern Europe (route AT22A). Depending on the winds encountered in the vicinity of the Azores, the recommended practice is to stay on the tack which gives most northing as westerly winds will be found in higher latitudes and the course can then be altered to NE. For the rest of the passage to Northern Europe see route AN132 (page 143).

For vessels bound for the Mediterranean (route AT22B), the route north of the equator should stay as far east as the NE trade winds will allow. If too much leeway is made to the west and the Azores cannot be avoided, Horta or Ponta Delgada provide convenient stops from where route AN134 gives details for the continuation of the voyage to the Mediterranean (page 146).

AT23 South Africa to Azores

BEST TIME:	January to April			
TROPICAL STORMS:	None			
CHARTS:	BA: 4022, 2127 US: 22, 120			
PILOTS:	BA: 1, 2, 67 US: 121, 123, 140, 143			
CRUISING GUIDES:	<i>Azores Cruising Guide, Atlantic Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT230 Table N 33°55'S, 18°23'E	AT231 Helena 15°55'S, 5°43'W			
	AT232 Ascension 7°56'S, 14°25'W			
	AT233 Verde 16°30'N, 26°00'W		Horta 38°32'N, 28°38'W	5329
			Pta Delgada 37°44'N, 25°40'W	5284

The great circle route from Cape Town to the Azores runs close to both St Helena (route AS11) and Ascension (route AS12) and few boats pass those islands without stopping briefly. If no stop is intended, the great circle route should be taken from Cape Town to one of the longitudes recommended in AT10 where the equator should be crossed. As most of the passage in the South Atlantic is made in the SE trades, steady winds can be expected almost all the way to the equator. From Ascension, the route continues in a NW direction towards the equator which is crossed further west during the northern winter and further east in summer. The recommended longitudes are between 26°W and 28°W in December to February, 22°W to 25°W between June and September. The latter period coincides with the SW monsoon, when it may be better to cross the equator more to the east and take a route between the Cape Verde Islands and the African coast to take advantage of the SW

winds. This would mean that the NE trades would be entered at a better angle north of the Cape Verdes. Such an alternative route could also include a detour to West Africa.

The route inside of the Cape Verdes is not recommended in winter when the islands should be passed as closely as possible on their west side. To be able to do this, sufficient easting must be made while still in the SE trades. Otherwise the easting will have to be made with the help of the engine before the NE trade winds are met in the vicinity of 5°N. A route which passes close to the Cape Verdes, or is even interrupted there, is essential as it increases the chances of reaching the Azores on one tack. Official ports of entry in the Cape Verdes are Mindelo (16°53'N, 25°00'W), Praia (14°54'N, 23°31'W), and Sal (16°45'N, 23°00'W). Directions for the continuation of the route to the Azores are given in AN61 (page 81).

AT24 South Africa to Lesser Antilles

BEST TIME:	November to March				
TROPICAL STORMS:	June to November				
CHARTS:	BA: 4022, 4400				
	US: 22, 124				
PILOTS:	BA: 2, 5, 71				
	US: 121, 123, 124, 147				
CRUISING GUIDES:	<i>The Lesser Antilles, Sailor's Guide to the Windward Islands, Cruising Guide to Trinidad and Tobago.</i>				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
AT240 Table N 33°55'S, 18°23'E	AT241 Helena 15°55'S, 5°43'W				
	AT242 Ascension 7°56'S, 14°25'W				
	AT243 Equator 0°00', 32°30'W	AT244 Tobago 11°08'N, 60°40'W	Scarborough 11°11'N, 60°44'W	5384	
		AT245 Barbados 13°00'N, 59°37'W	Bridgetown 13°05'N, 59°38'W	5369	
		AT246 St Lucia 14°03'N, 60°50'W	Rodney Bay 14°04.5'N, 60°58.5'W	5462	
		AT247 Martinique 14°22'N, 60°51'W	Fort de France 14°36'N, 61°05'W	5482	
		AT248 Antigua SE 16°57'N, 61°45'W	English Harbour 17°00'N, 61°46'W	5514	

As an alternative to AT25, this route has the advantage that it can leave South Africa earlier so as to arrive in the Caribbean after the middle of

November and the start of the safe cruising season there. As the route passes close to St Helena, most boats make a brief call there before continuing

TRANSEQUATORIAL ROUTES IN THE ATLANTIC

towards the equator. Another favoured stop en route to the Caribbean is the island of Fernando de Noronha, off the coast of Brazil. Directions for the above routes are given in AS11 and AS13 (pages 183 and 185).

The direct route from South Africa to the Caribbean crosses the equator in about longitude 32°30' (WP AT243), where the doldrums are very narrow at the recommended time of year (December to February). The SE trades are normally lost soon after the equator has been crossed and the NE trades are picked up 100 to 150 miles further on. The route continues parallel to the coast of Brazil, where a very strong current setting NW at rates of 1 1/2 to 2 knots gives an excellent boost. Route AT21 describes some of the possible stops along the northern coast of South America.

As the NE trade winds are normally found in about latitude 5°N and their initial direction is sometimes NNE, boats that are bound for the Leeward or Virgin Islands are advised not to cross the equator too far west so as to have a better slant through the trades. In such a case, the recommended longitude for crossing the equator is between 30°W and 32°W.

For boats arriving from the south, the most convenient landfalls in the Caribbean are:

AT244, five miles SE of Scarborough, the capital of Tobago, where entry formalities into Trinidad and Tobago can be completed.

AT245, five miles SW of South Point, the southern extremity of Barbados. Formalities are completed in the commercial port of Bridgetown, north of Carlisle Bay, the recommended anchorage.

AT246, four miles east of Cape Marquis, on the NE coast of St Lucia. Having sailed along the north coast of St Lucia, the marina in Rodney Bay makes an excellent landfall where entry formalities can be completed. St Lucia can be also approached from the south, in which case the port of entry at Vieux Fort (13°44'N, 60°57') can be used.

AT247, three miles SSE of Martinique. The nearest place to complete formalities is Cul de Sac du Marin, a small port on the SE tip of the island. This is more convenient than the capital Fort de France, which is another 25 miles up the coast.

AT248, two miles SSE of English Harbour on the SE coast of Antigua. Formalities can be completed in the nearby historic port of English Harbour.

AT25 South Africa to North America

BEST TIME:	January to April			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 2127			
	US: 22, 120			
PILOTS:	BA: 2, 5, 69, 70, 71			
	US: 121, 123, 140, 147			
CRUISING GUIDES:	<i>Coastal Cruising Guide to the Atlantic Coast, Yachting Guide to Bermuda.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT250 Table N 33°55'S, 18°23'E	AT251 Helena 15°55'S, 5°43'W			
	AT252 Ascension 7°56'S, 14°25'W			
	AT253 West 0°00', 28°00'W			
	AT254 St George's 32°23'N, 64°40'W		Newport 41°29'N, 71°20'W	6806

Similar directions apply as far as the equator as for route AT23, although a more westerly crossing of the equator may be preferable for boats bound for the USA. A convenient stop south of the equator is

the small Brazilian island Fernando de Noronha in which case the equator will be crossed further west than WP AT253. Because the optimum departure time from Cape Town (January to March), brings

boats too early into the North Atlantic, few people sail the entire route nonstop and usually make a detour to the Caribbean. This is easily accomplished as the route runs quite close to the Lesser Antilles. Route AN77 describes the subsequent leg from the islands to the USA (page 92).

Having crossed the equator, the direct route runs NW through the NE trades to Bermuda from where

route AN121 gives directions for the continuation of the voyage to the USA (page 135). If a nonstop passage is planned from Cape Town, an arrival in Bermuda is not recommended before the middle of April. In this case, a departure from Cape Town at the end of February or beginning of March is not too late as favourable sailing conditions still prevail in the South Atlantic.

AT26 Cape Horn to Europe

BEST TIME:	December to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 2127			
	US: 20, 120			
PILOTS:	BA: 1, 5, 6, 22, 27, 67			
	US: 121, 124, 140, 143, 191			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT260 Horn 56°02'S, 67°15'W	AT261 55°55'S, 66°53'W AT262 Le Maire 55°00'S, 65°00'W	AT263 Falkland 53°00'S, 58°30'W AT264 Pembroke 51°45'S, 57°35'W	Stanley 51°39'S, 57°43'W	447
	AT265 45°00'S, 48°00'W AT266 40°00'S, 42°00'W AT267 30°00'S, 34°00'W AT268 Equator 00°00', 26°00'W	Lizard 49°55'N, 5°10'W Espartel 35°50'N, 5°57'W	Falmouth 50°09'N, 5°04'W Gibraltar 36°08'N, 5°22'W	7173 6435

This busy route in the heyday of the clipper ships is used nowadays mainly by participants in round the world races and only a few cruising boats, which choose this tough way of reaching Europe from the antipodes. After rounding Cape Horn, from WP AT260, five miles south of Cape Horn, the course is altered for WP AT261. From here, the route can pass either east or west of Staten Island. If this island is passed to seaward, a wide berth should be given to Cape St John, as a dangerous tide rip extends offshore for about six miles making conditions hazardous when the wind blows

against the tide. Alternatively, the route through Le Maire Strait can be taken, especially if the intention is to pass to the west of the Falkland Islands. In this case a course should be set for WP AT262 at the entrance into the Strait. Going north through Le Maire Strait it is essential to wait for a fair tide and, if at all possible, a fair wind as well. The choice must be made whether to lay a course which will pass between the mainland and the Falklands or choose an offshore course. In the latter case a stop in the Falklands should be considered. WP AT263 keeps well clear of Beauchene Island and Mintay

TRANSEQUATORIAL ROUTES IN THE ATLANTIC

Rock, south of the Falklands, from where the course is altered for WP AT264, off Cape Pembroke in the approaches to Stanley Harbour.

Regardless of whether one stops in the Falklands or not, there is a choice of either an inshore or offshore route to the equator. The inshore route along the coast of Argentina is the more cautious one as it benefits from the favourable current, the seas are not as rough as offshore, and the danger of encountering icebergs is also greatly reduced. The latter are usually seen well offshore and occasionally can reach as far north as the latitude of the River Plate. Winds from the southerly quarter are most likely on this stretch during summer months. As the effect of the Falklands Current peters out, the route should move offshore so as not to get caught by the contrary Brazil Current.

If the offshore route is taken from the Falklands, the route runs in a general NE direction through an area of prevailing westerly winds. It is advisable

to make some easting in these latitudes before reaching the SE trades so that the subsequent route to the equator will intersect them at a better angle. From the Falkland Islands the route passes through waypoints AT265, AT266, and AT267, so that the SE trades will be found somewhere along meridian 30°W. The SE trades normally extend to latitude 25°S and near their southern limit their direction becomes more easterly. Once in the trades, the course becomes northerly so that the equator is crossed between longitudes 26°W and 30°W, depending on the time of year (see AT20). During the southern summer, from May to September, it is usually possible to stay closer to the Brazilian coast and sail between Cape Frio and the offlying islands. After the equator is crossed, the NE trade winds will be found between latitudes 3°N and 5°N. For the continuation of the passage to Europe see routes AT22 and AT23.

AT27 Cape Horn to North America

BEST TIME:	December to March			
TROPICAL STORMS:	June to November			
CHARTS:	BA: 2127			
	US: 20, 120			
PILOTS:	BA: 5, 6, 69, 70, 71			
	US: 121, 124, 140, 147			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AT270 Horn 56°02'S, 67°15'W	AT271 55°55'S, 66°53'W AT272 Le Maire 55°00'S, 65°00'W	AT273 Falkland 53°00'S, 58°30'W AT274 Pembroke 51°45'S, 57°35'W	Stanley 51°39'S, 57°43'W	447
	AT275 45°00'S, 48°00'W			
	AT276 40°00'S, 42°00'W			
	AT277 30°00'S, 34°00'W			
	AT278 00°00', 30°00'W	David 32°22'N, 64°38'W Brenton 41°24'N, 71°16'W	St George's 32°22'N, 64°40'W Newport 41°29'N, 71°20'W	6903 7472

This route follows the same track as route AT26 until the SE trade winds are found, from where a more westerly route can be taken to the equator passing close to Fernando de Noronha island. As far as the equator, the same waypoints can be used as in AT26. The equator is crossed in about longitude 30°W (WP AT278) and the great circle route is taken from there either to Bermuda or direct to the port of destination. This route is not recommended during the North Atlantic hurricane season, but as Cape Horn will have been doubled probably during the most favourable months, which are the southern summer months of December to February,

this passage will reach the North Atlantic at the end of winter. As the optimum time for rounding Cape Horn does not fit in with the best arrival time in North America, some alternatives may have to be considered to avoid a winter arrival in the USA. This can be accomplished by spending some time en route in Brazil, Lesser Antilles, or Bermuda. See also routes AT21, AN77, and AN78 (pages 172, 92 and 94). The direct route north of the equator passes through the NE trades which normally last as far as latitude 25°N from where the Horse Latitudes will have to be crossed.

7

WINDS AND CURRENTS OF THE SOUTH ATLANTIC

The Southeast trade winds

Because the Intertropical Convergence Zone is situated north of the equator throughout the year, it may be said that the South Atlantic Ocean does not have a doldrums zone. The SE trade winds are more constant than their North Atlantic counterpart, the NE trades. They form the equatorial side of the air circulation around the oceanic anticyclone, which is situated between latitudes 22°S and 30°S and has a direct bearing on the winds and weather of the entire tropical South Atlantic.

The SE trade winds extend as far as the equator during the southern winter and their northern limit retreats by a few degrees to the south in the summer after December. Their southern limit extends normally to a line joining the Cape of Good Hope to the Brazilian island of Trinidad. Their direction varies from being SE or SSE on the eastern side of the ocean to become almost easterly in the western part. The average strength of the SE trades is 15 knots, but they diminish in strength towards the equator.

Variables

A zone of light variable winds extends to the south of the SE trade wind belt and is similar to the Horse Latitudes of the North Atlantic. This region of variable winds coincides with the areas of oceanic high pressure which are located between latitudes 25°S and 32°S approximately. Their position is influenced by the seasonal movement of the sun, reaching their southern limit in January and their

northern limit in July. To the east of the 0° meridian the winds tend to be mostly southerly and can be regarded as an extension of the trades. The summer winds in the western half of this region are mostly NE.

Westerlies

The winds in the higher latitudes of the South Atlantic are predominantly westerly. This is the region of the Roaring Forties where the continuous passage of depressions from west to east generate winds which often blow with gale force. The strong westerlies are a normal feature of southern waters where they blow unhindered south of the three great capes.

Tropical Storms

Tropical revolving storms do not occur in the South Atlantic Ocean.

Currents

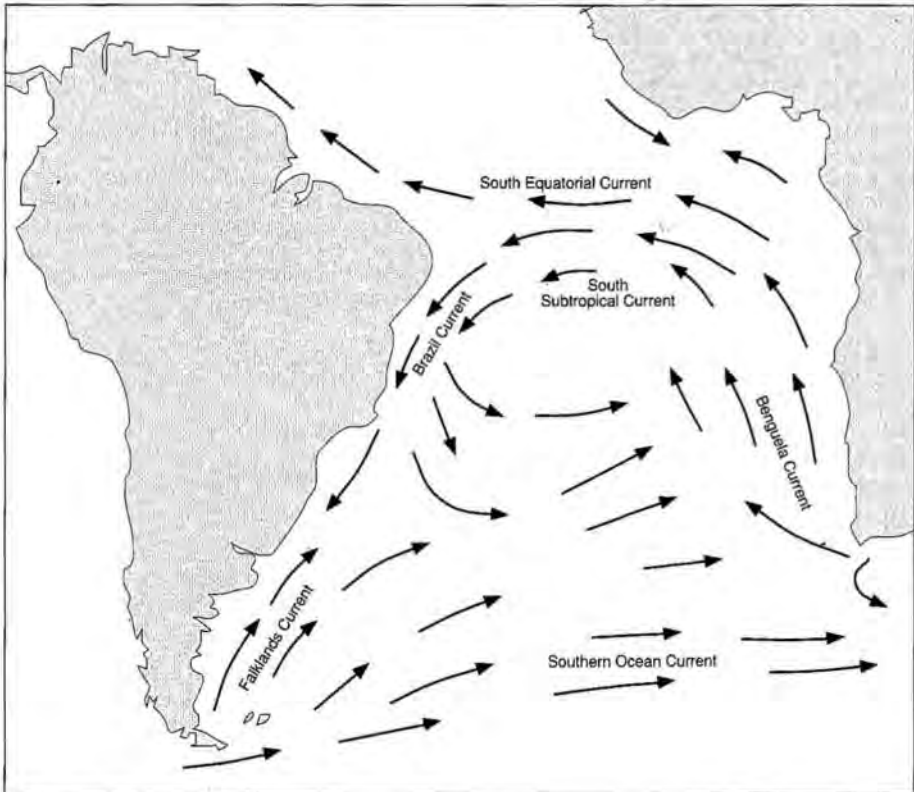
The currents of the South Atlantic Ocean are part of a well defined anti-clockwise circulation. The South Equatorial Current flows in a broad belt from east to west with its axis roughly along latitude 6°S. The part of this current which is between the equator and latitude 6°S is reputed to be one of the most constant currents in the world. The set is always in a westerly direction, usually between WNW and WSW, the average rate being about 1 knot. Further south, to about latitude 20°S, there is the weaker

WINDS AND CURRENTS OF THE SOUTH ATLANTIC

South Subtropical Current also setting to the west. The South Equatorial Current extends across the equator to about latitude 4°N and one branch of it combines with the North Equatorial Current to form a strong current setting towards the West Indies. The other branch is deflected to the south by the South American continent and combines with the South Subtropical Current to form the Brazil Current. This current sets strongly parallel to the coast until it reaches latitude 25°S, where part of it turns east. The remainder carries on as far as latitude 35°S, where it also turns east to join the vast body of water which sets eastward and is generated by the Southern Ocean Current. This broad belt of cold water sets eastward in the southern hemisphere to the south of all continents. After passing

Cape Horn, a branch of this current turns to the northeast into the South Atlantic and forms the Falklands Current.

On the African side the main ocean circulation of the South Atlantic is completed by the Benguela Current. This current sets north along the coast of Africa and is a continuation of the Agulhas Current after the latter has passed the Cape of Good Hope. The Benguela Current is reinforced by some of the Southern Ocean Current. North of latitude 20°S the Benguela Current sets away from the African coast fanning out into the Subtropical and South Equatorial Currents. Near the African coast, the set of the current is always northerly and from February to April it reaches as far as the equator.



South Atlantic currents

8

ROUTES IN THE SOUTH ATLANTIC

Compared to the North Atlantic, the South Atlantic is intersected by only a handful of routes and the number of cruising boats sailing them is relatively small. The classic route from the Cape of Good Hope to St Helena is used nowadays by a smaller number of boats than in the past as more yachts sail to Europe via the Red Sea and Suez Canal. One area, however, which has seen an increase in recent years is Brazil, particularly the northeastern coast, which is visited by boats making a detour on their way from Europe to the Caribbean. Otherwise, South America is still largely undiscovered by cruising boats, although every year an increasing number of yachts brave the elements and sail down to the Strait of Magellan.

A few yachts reach the Atlantic by sailing from

the South Pacific to Chile eastabout through the Magellan Strait. The traditional circumnavigating route around the Cape of Good Hope is used mainly by racing boats taking part in such races as the Whitbread, BOC, Globe Challenge, or Jules Verne Trophy. On their return voyage, these boats pass again through the South Atlantic after having weathered Cape Horn, a challenge which in recent years has been confronted by only a handful of cruising sailors.

The weather in the South Atlantic is dictated by the powerful South Atlantic high and as its position has a direct bearing on the winds encountered on most of these routes, an attempt should be made to obtain its approximate coordinates before leaving on an offshore passage.

AS10 ROUTES FROM SOUTH AFRICA

AS11 <i>Cape Town to St Helena</i>	183
AS12 <i>St Helena to Ascension</i>	184
AS13 <i>St Helena to Brazil</i>	185
AS14 <i>Cape Town to Brazil</i>	186

The routes leading into the South Atlantic from South Africa are used mainly by circumnavigating boats on their way to Europe or North America. South African yachts, themselves leaving on a longer cruise, also join these routes. The Cape to Rio Race, which has been reinstated after an interruption of several years, is used by many South Africans as a convenient start to their own voyage. With the decrease in the number of boats that sail around the world by way of the Cape of Good Hope, there are now fewer boats that reach the Atlantic by this route.

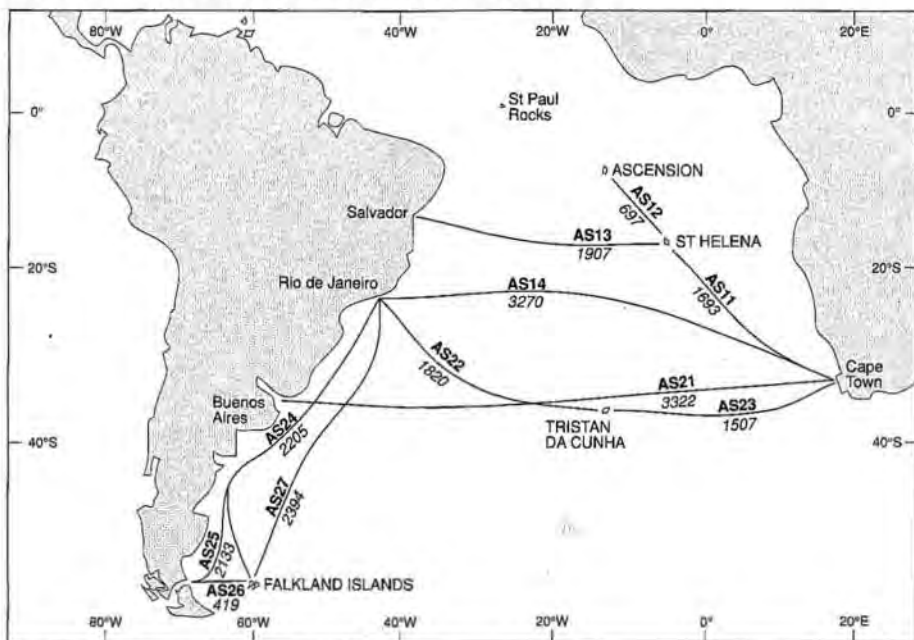
With the hot mass of Africa to the north and the cold Antarctic ice to the south, the high coastline presents an obstacle to opposing air currents from those regions. The main feature of weather conditions in this area is the high proportion of gale force winds, which come from almost any direction and with little warning, quickly raising high and dangerous seas. The weather forecasts here rarely give a prognosis for longer than 12 hours. Often winds build up to gale force in the day and fall at night, but this is not a rule, nor can it be relied on.

Another local phenomenon is to have gales from

AS10 ROUTES FROM SOUTH AFRICA

different directions, NE followed by SW on succeeding days. The strong currents in this area are part of the reason why seas build up so high and so rapidly, especially when the gales are opposing the current. A typical sequence of weather is for a

NE gale to blow hard, followed by a lull, and then SW winds setting in with gale force. In summer depressions come up from the south giving a cold change similar to the southerly busters experienced in SE Australia.



AS10 and AS20 Routes in the South Atlantic

AS11 Cape Town to St Helena

BEST TIME: November to March
TROPICAL STORMS: None
CHARTS: BA: 4022
 US: 22
PILOTS: BA: 2
 US: 121, 123

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
AS110 Table N 33°55'S, 18°23'E	AS111 33°50'S, 18°20'E	AS112 15°55'S, 5°38'W	Jamestown 15°55'S, 5°43'W	1693

ROUTES IN THE SOUTH ATLANTIC

Because of the consistency of the SE trade winds and the absence of tropical storms in the South Atlantic, this passage can be made throughout the year. However, most sailors plan on leaving the Cape area before the onset of the winter gales and therefore the best time for this passage are the summer months, from November to April. Such timing fits most forward plans, whether it is to arrive in Brazil for Carnival, the Caribbean for the winter cruising season, or the USA and Europe in late spring or early summer.

It is generally advisable to wait in Cape Town for a favourable forecast, or at least until any existing lows have passed over. Strong SW winds sometimes give a welcome boost at the start of this passage, although they occasionally reach gale force. If the African coast is followed northward, the strong Benguela current will be in one's favour, although fog is often associated with this area and is caused by the warm wind blowing over the cold waters of the current. The suggestion to follow the African coast, in order to take advantage of the favourable current and possible land breezes, runs contrary to the recommendation made in the past when the masters of sailing ships leaving Cape Town were urged to make a good offing to the NW to avoid being caught on a lee shore by W or NW squalls. This advice is still valid and during unsettled weather it is indeed better to keep a safe distance off the coast. Violent onshore squalls have been recorded in both seasons, so a prudent distance should be kept off the coast to be able to take an offshore tack should a squall strike unexpectedly.

During summer, the southern limit of the SE trades reaches as far as Cape Town, but because of the peculiar nature of the weather in this area, true trade wind conditions are usually met only north of latitude 25°S. Violent gales of short duration are not uncommon even during January and February, which are the best months for this passage, although the gales occur mainly south of 30°S. As the position of the South Atlantic high has such a major bearing on the winds to be experienced on this route, its location should be obtained before leaving Cape Town. One tactic used by past participants in the Cape to Rio Race is to stay well to the east of the high. This may mean staying east of the rhumb line, but the course can be altered for St Helena once steady winds have been found. Boats sailing north along the coast of SW Africa will find some facilities in the two Namibian ports, Luderitz (26°38'S, 15°09'E) and Walvis Bay (22°57'S, 14°30'E), both used extensively by fishing boats.

Having left Table Bay, from WP AS111, the great circle route leads to WP AS112, east of St Helena. This rather forbidding island, place of exile for Napoleon, often stands out like a fortress, visible from 60 miles away, due to the excellent clear visibility that prevails in this region. The island's only harbour is called the Anchorage, which gives reasonable shelter from the prevailing SE winds. The main settlement is Jamestown, where formalities are completed. Port Control should be contacted on VHF channel 16 for mooring instructions.

AS12 *St Helena to Ascension*

BEST TIME:	All year			
TROPICAL STORMS:	None			
CHARTS:	BA: 4022 US: 22			
PILOTS:	BA: 2 US: 123			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS121 Helena 15°50'S, 5°50'W		AS122 Ascension 7°52'S, 14°20'W	Clarence 7°56'S, 14°25'W	697

As a continuation of a northbound passage from South Africa, the subsequent leg from St Helena to Ascension benefits from favourable winds through-

out the year. The direction of the wind is predominantly SE, although its strength varies and sometimes can be light, especially in the summer months

January to March. From WP AS121, NW of St Helena, a course should be set for WP AS122, SE of Ascension.

A bustling military base, this outpost in mid-Atlantic is another welcome stop for those on long Atlantic voyages. The SE trades have often spent some of their force by the time they reach Ascension and can be as light as 5 knots. Heavy rollers and swell from the NW can be experienced when the NE trade is at its height in the North

Atlantic, which can make landing difficult. Ascension Island is a British military base and yachts are discouraged from calling there unless they have an emergency. Because of its military nature, yachts may only stop in Ascension for 48 hours. Formalities are completed in Georgetown and the anchorage is at Clarence Bay. Yachts are supposed to anchor in the area north of Pierhead, in Clarence Bay.

AS13 St Helena to Brazil

BEST TIME:	All year			
TROPICAL STORMS:	None			
CHARTS:	BA: 4022			
	US: 22			
PILOTS:	BA: 2, 5			
	US: 123, 124			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS131 Helena 15°50'S, 5°50'W		AS132 Bahia 13°05'S, 38°25'W	Salvador 12°58'S, 38°30'W	1907
AS131 Helena		AS133 off Recife 8°00'S, 34°49'W	Recife 8°04'S, 34°52'W	1768
AS131 Helena	AS134 Noronha S 3°50'S, 32°28'W		Fortaleza 3°43'S, 38°29'W	2088

Rather than take the direct route from St Helena to the Eastern Caribbean, many boats make a detour to Brazil before rejoining their NW route. One of the main attractions on Brazil's NE coast is Salvador, commonly referred to as Bahia, whose annual Carnival is a keen rival of the more famous Carnival of Rio. Landfall is made at WP AS132 off Cape Santo Antonio in the approaches to the perfectly sheltered natural harbour. Further up the Brazilian coast, another convenient port of entry is Recife. Landfall can be made at WP AS133, 3 miles outside the harbour.

Boats not intending to stop in mainland Brazil often use the island of Fernando de Noronha, off Cape São Roque, as a convenient stop on the way to the Caribbean. Landfall can be made SE of the island at WP AS134. Although not an official port

of entry, boats are allowed to make a short stop there. A convenient port of entry into Brazil, just south of the equator, is Fortaleza. Those intending to stop in mainland Brazil must arrive with a valid visa which is required of most nationalities. Route AT21 gives details of the rest of the route to the Eastern Caribbean (page 172).

The weather on this route is mostly pleasant, with consistent E and SE winds that very rarely reach gale force. Between March and September the winds along the Brazilian coast are predominantly SE and the current sets NE. Between October and February the prevailing winds are NE and the current sets to SW, a combination making northbound passages very difficult. During this period it is recommended to either keep well offshore or plan one's arrival for the favourable season.

AS14 Cape Town to Brazil

BEST TIME:	December to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4022			
	US: 22			
PILOTS:	BA: 2, 5			
	US: 123, 124			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS140 Table N 33°55'S, 18°23'E		AS141 Rio 23°05'S, 43°05'W	Rio de Janeiro 22°55'S, 43°12'W	3270
AS140 Table N		AS142 Bahia 13°05'S, 38°25'W	Salvador 12°58'S, 38°30'W	3328
AS140 Table N		AS143 off Recife 8°00'S, 34°49'W	Recife 8°04'S, 34°52'W	3320
AS140 Table N	AS144 Noronha S 3°50'S, 32°28'W	AS145 off Fortaleza 3°43'S, 38°27'W	Fortaleza 3°43'S, 38°29'W	3717

The great circle route to Rio de Janeiro and ports south of Cape Frio is well outside the southern limit of the SE trade winds, so it is advisable to make this passage between latitudes 20°S and 23°S where the chances of having favourable winds is much greater. The SE trade winds have their southern limit along a diagonal line that runs from Trinidad Island to the Cape of Good Hope. The initial route from Cape Town runs NW for about 1200 miles until steady SE trades are found. It then goes west as far as longitude 30°W, from where a course is shaped for the coast. A similar tactic, taking full advantage of the SE trade winds, should also be used if sailing to ports lying further south along the coast of South America.

A more direct route from Cape Town can be steered to ports lying north of Cape Frio. As the ports on the Brazilian coast between Cape São Roque and Cape Frio are under the influence of steady NE winds between October and February

and the current along the coast also sets SW, a subsequent passage from Rio de Janeiro northward should be planned for the SE season, from March to September.

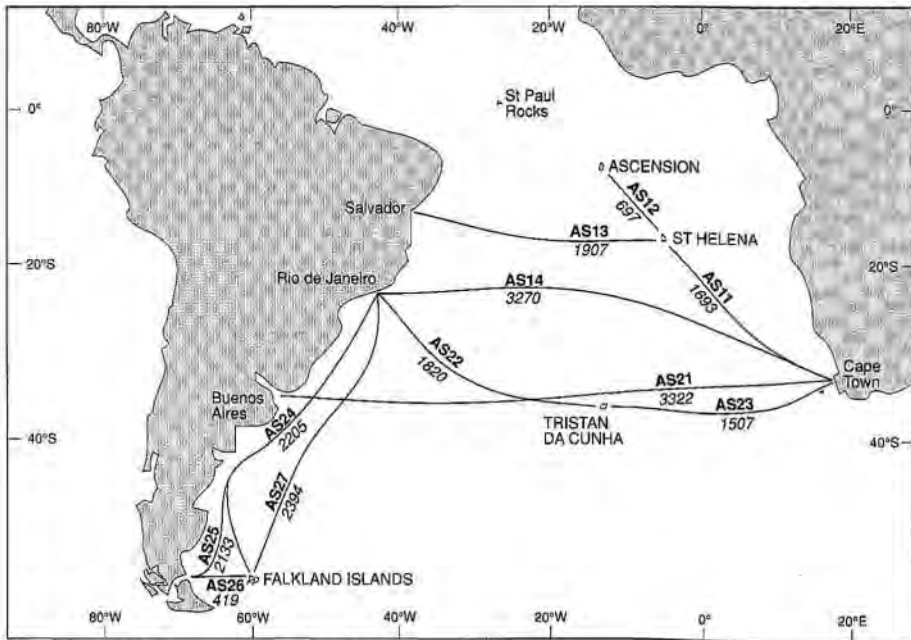
Although intermediate waypoints cannot be given as the route across will depend entirely on weather conditions at the time the passage is made, landfall waypoints only are listed to ease planning: WP AS141 in the approaches to Rio de Janeiro, WP AS142 off Cape Santo Antonio in the approaches to Salvador (Bahia), WP AS143, three miles outside Recife. As explained in AS13, some boats use the island of Fernando de Noronha, off Cape São Roque, as a convenient stop on the way to the Caribbean. Landfall is made SE of the island at WP AS144. Although not an official port of entry, boats are allowed to make a short stop there. A convenient port of entry into Brazil, just south of the equator, is Fortaleza.

AS20 ROUTES FROM SOUTH AMERICA

AS21	<i>South America to South Africa</i>	188
AS22	<i>Brazil to Tristan da Cunha</i>	190
AS23	<i>Tristan da Cunha to Cape Town</i>	190
AS24	<i>South America to Falkland Islands</i>	191
AS25	<i>South America to Magellan Strait</i>	192
AS26	<i>Magellan Strait to Falkland Islands</i>	193
AS27	<i>Falkland Islands to South America</i>	193

The small number of routes in the South Atlantic is not due to a paucity of destinations as there are many interesting places to visit in South America. Nor is the weather itself an impediment as, particularly in the tropics, weather conditions can be very pleasant throughout the year with the added advantage that the area is not affected by tropical storms. In the past, most cruising boats reached South America as part of a longer voyage that, in most cases, had taken them through the Indian Ocean and South Africa or, less commonly, around Cape Horn. Nowadays, many circumnavigators

prefer the Red Sea route and so the boats that reach South America, and particularly Brazil, arrive from the North Atlantic, either from the Canaries direct or by way of a detour to West Africa. Not many boats sail further south than Rio de Janeiro before turning around and heading for the Caribbean. The southern half of South America is still to be discovered by cruising boats in any numbers and, although every year more boats venture to the Straits of Magellan, Falklands, Cape Horn, and even Antarctica, they are still the exception. Whereas passages in the northern half of the South



AS10 and AS20 Routes in the South Atlantic

ROUTES IN THE SOUTH ATLANTIC

Atlantic can be undertaken at any time of the year, the weather in the southern part is not conducive to cruising during the months December to March.

In the River Plate estuary in the summer months from September through to March, the prevailing wind is from an easterly direction. The rest of the year a W to SW wind prevails in the entrance reaches, becoming more northerly in the river. The weather is usually fine when the wind is settled in the north. During June to October, strong SW squalls called *pamperos* can occur with little warning. Named because they blow across the pampas, these squalls bring rain and cold temperatures that can even change the rain to hail. Most frequent in the winter months, the *pamperos* can last two or three days, occasionally longer. In other months they are less frequent and do not last so long, but may pack a more violent wind. Although centred on the Rio de la Plata, the *pamperos* affect the surrounding coastal area between latitudes 31° and 40°S and as far out to sea as 48°W.

The southern coast of Brazil from Rio de Janeiro to Rio de la Plata has very variable winds with seasonal variations. From October through to April, winds from a NE direction predominate, which when strong are usually followed by calms and a SW wind. In April NW and SW winds blow in equal proportion to the NE winds, which after a few SE to SW gales give way to SW winds in May. These SW winds prevail until October. From July to September, westerly winds bring bad weather on rare occasions. NW squalls lasting several hours occur at this time near Rio de Janeiro.

Above Rio de Janeiro the lower east coast of Brazil enjoys NE winds, fine weather, and a clear sky for most of the year, the winds being strongest close to the coast from December to February. Off the capes of Frio and São Tomé the combination of fresh NE winds and strong currents can create rough seas. The NE winds are not felt so strongly west of Cape Frio as the mountains check their force. Higher up the coast the SE trade wind is felt from March to August as far south as Salvador (Bahia), although the rest of the year it reaches only as far as Recife (Pernambuco). Both the SE and NE winds sometimes give way to squally SW weather lasting a few days and bringing clouds and rain. This SW weather occurs particularly from April to August when the winds are usually lighter and more variable. The barometer usually falls 24 hours before the onset of SW winds. Although there are land and sea breezes all along the coast, the land breeze is normally short-lived and weak unless the sea breeze is strong.

On the north coast of Brazil towards the Amazon, the movement of the Intertropical Convergence Zone influences the weather bringing the SE trade wind, accompanied by fine weather, from August to October and the NE trade wind from November to March. This latter period is the wet season along this coast. Both of these winds have a more easterly component tending to be ESE and ENE. Between April and the onset of the SE trades in August, the wind first moves into the ESE and then gives way to a couple of months of doldrum weather with calms, squalls, and variables.

AS21 South America to South Africa

BEST TIME:	November to March
TROPICAL STORMS:	None
CHARTS:	BA: 4022 US: 22
PILOTS:	BA: 2, 5 US: 121, 123, 124

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
AS210 Rio	AS211			
23°05'S, 43°05'W	30°00'S, 35°00'W			
	AS212			
	34°30'S, 13°00'W			

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
	[AS213 36°00'S, 13°00'W]			
	AS214 36°00'S, 5°00'E	AS216 Table S 34°00'S, 18°20'E	Cape Town 33°55'S, 18°26'E	3322
AS215 Plata 35°00'S, 57°00'W	AS213	AS216 Table S	Cape Town	3705

A direct route to the Cape of Good Hope cannot be sailed from any of the northern ports in South America on account of the SE trade winds which blow consistently in the tropical South Atlantic virtually throughout the year. The one exception is the area south of Cape São Roque, below the bulge of South America, where NE winds prevail between October and February. During the same period, a favourable SW current also sets parallel to the coast. Boats leaving from one of the ports in Northern Brazil should take advantage of winds and current to make the necessary southing before heading offshore.

If leaving from one of the ports in Southern Brazil, the most favourable tack should be sailed to reach the area of westerly winds, the northern limit of which depends on the time of year. An area of variable winds will have to be crossed between latitudes 25°S and 33°S, its width being dependent on the time of year. At the beginning of summer, W or N winds will be found around latitude 33°S, but as the summer progresses the northern limit of the westerlies retracts, and it may be necessary to sail to 37°S and even 38°S to find steady westerly winds.

Taking WP AS210 as a departure point from Rio de Janeiro, a course should be set slightly south of the great circle route to reach the area of favourable

winds as soon as possible. Having reached WP AS211 the recommended route continues to WP AS212. To increase the chances of finding good winds it may be necessary to dip even further south of the great circle route to WP AS213, 60 miles north of Tristan da Cunha. It is at this point that one may decide to stop at that island (see also route AS22). Having reached this point, the temptation should be resisted to join the shortest route for the rest of the voyage to Cape Town as staying on a higher latitude increases the chances of having better winds as one approaches the tip of Africa, especially if met by strong southerly winds. Therefore the great circle route for Cape Town should not be joined before WP AS214 is passed.

Boats leaving from ports in Uruguay or Argentina benefit from better winds and can sail the great circle route to South Africa. Leaving from WP AS215, at the mouth of Rio de la Plata, a rhumb line to WP AN213 has better chances of favourable winds than a great circle route. As described above, a stop in Tristan da Cunha may be considered as the island lies very close to the recommended route to Cape Town. Directions for the rest of the passage are the same as those described above. Landfall will be made at WP AS216, in the approaches to Cape Town. Cape Town is South Africa's premier yachting centre with excellent repair facilities.

AS22 Brazil to Tristan da Cunha

BEST TIME:	November to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4022			
	US: 22			
PILOTS:	BA: 2, 5			
	US: 121, 123, 124			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS220 Rio 23°0'S, 43°05'W	AS221 30°00'S, 35°00'W	AS222 36°55'S, 12°25'W	Edinburgh 37°03'S, 12°18'W	1820

As the great circle route from Rio de Janeiro to Cape Town passes through an area of variable winds, navigators are advised to set a more SW course on leaving Rio de Janeiro so as to reach the area of prevailing NW and W winds sooner. Such a route passes close to Tristan da Cunha. From WP AS220, SE of Rio de Janeiro, a course should be set for WP AS221. From there the course can be altered for WP AS222, some eight miles NW of Tristan da Cunha. If this passage is made at the beginning of summer, in October or November, westerly winds are usu-

ally found in latitude 33°S or 34°S and it may not be necessary to go south in search of steady winds. As the summer progresses, the belt of variables moves south and in February or March it may be necessary to go as far as 37°S to find steady westerlies. The winds in these latitudes are usually 20 to 25 knots, occasionally reaching 40 knots.

The island's port of entry is Edinburgh. The small harbour is only suitable for the small local boats, but an anchorage can usually be found in the lee of the island.

AS23 Tristan da Cunha to Cape Town

BEST TIME:	December to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4022			
	US: 22			
PILOTS:	BA: 2			
	US: 121, 123			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS230 Cunha 36°55'S, 12°10'W	AS231 36°00'S, 5°00'E	AS232 Table S 34°00'S, 18°20'E	Cape Town 33°55'S, 18°26'E	1507

The winds below latitude 35°S are much more favourable for the passage to Cape Town than those blowing further north and so a more southerly route is recommended. Near Tristan da Cunha the winds are mostly from between N and W in summer becoming more westerly as one moves east. From WP AS230 the recommended route runs due east along the latitude of Tristan da Cunha. From WP AS231 a direct course can be set for WP

AS232 in the approaches to Cape Town. As the prevailing summer winds in the Cape Town area are SE and gales from that direction are frequent, the coast should be approached from the SW to avoid being set to leeward by the wind and current setting strongly northward. Cape Town is South Africa's premier yachting centre with excellent repair facilities.

AS24 South America to Falkland Islands

BEST TIME:	December to February			
TROPICAL STORMS:	None			
CHARTS:	BA: 4200, 4201 US: 20			
PILOTS:	BA: 5, 6 US: 121, 124			
CRUISING GUIDES:	<i>Falklands Islands Shores.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS240 Rio 23°05'S, 43°05'W	AS241 36°00'S, 54°30'W		Mar del Plata 37°57'S, 57°32'W	1163
	AS242 43°00'S, 62°00'W		Puerto Madryn 42°46'S, 65°03'W	1656
			Puerto Deseado 47°45'S, 65°54'W	1850
	AS243 47°00'S, 65°00'W			
	AS244 51°25'S, 57°30'W	AS245 Pembroke N 51°37'S, 57°40'W	Port Stanley 51°39'S, 57°43'W	2205

The route from Rio de Janeiro southward runs close to the coast, and if not calling at ports in the Rio de la Plata estuary, the direct offshore route is to be preferred, certainly as far south as latitude 35°S. The winds between Rio de Janeiro and this latitude are mostly NE in summer. South of latitude 35°S, winds become increasingly westerly and it is advisable to stay well to the west of the direct route to the Falklands to avoid being blown off course by a westerly gale. The weather is generally better inshore than further offshore. Another reason why an inshore route is preferable is to avoid the strong north setting Falklands Current which can reach as much as 2 knots offshore. For these reasons, south of the River Plate estuary the route should run parallel and very close to the Argentinian coast.

From Rio de Janeiro and WP AS240, the course follows the coast closely to take advantage of the favourable wind and current. The course is altered at WP AS241, in the Rio de la Plata estuary, for WP AS242. The recommended route runs parallel to the Argentinian coast, at 60 to 100 miles offshore. There are several ports in Argentina where it is possible to stop in an emergency, such as Mar del Plata, Puerto Madryn, or Puerto Deseado. Having run closely to the Argentinian shore, at WP AS243 the route swings offshore and a course can be set for WP AS244, seven miles NE of Volunteer Point on East Falkland. The course can then be altered for

WP AS245, off Cape Pembroke in the approaches to Port Stanley.

The prevailing wind direction in the Falklands is westerly and these truly windy islands have an average yearly wind speed of 17 knots with a slight rise in the summer months of December to March. The winds can drop to calm at sunset with a tendency to increase to 10-15 knots during the night, calming again at dawn. The winds tend to increase during the day and can reach gale force by the afternoon.

Gales usually begin in the NW and quickly draw around to the SW. The worst gales tend to be those from the N and NE, which are not easily predicted and often occur without warning. They are caused by depressions moving north between the islands and the Patagonian coast. Northerly winds, which are common in the summer months from December to April, often produce fog along the north coast. When strong westerlies are blowing, the islands are prone to willywaws, which can be extremely dangerous to small craft. These occur mostly in the lee of the islands and in some of the narrow passages between islands in the west.

Those who plan to cruise among the islands should obtain the 'mine maps' which are given free of charge at the Secretariat Building in Port Stanley and contain details of the areas which were mined during the 1982 war.

AS25 South America to Magellan Strait

BEST TIME:	November to February			
TROPICAL STORMS:	None			
CHARTS:	BA: 4200			
	US: 20			
PILOTS:	BA: 5, 6			
	US: 121, 124			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS250 Rio 23°05'S, 43°05'W	AS251 36°00'S, 54°30'W		Mar del Plata 37°57'S, 57°32'W	1163
	AS252 43°00'S, 62°00'W			
	AS253 Deseado 48°00'S, 65°00'W	AS254 Virgins 52°20'S, 68°10'W		2133
AS250 Rio	AS251			
	AS252			
	AS253 Deseado	AS255 Le Maire N 54°30'S, 65°00'W		2236

The southbound route from Rio de Janeiro runs parallel to the coast and, as far as the latitude of the Falkland Islands, directions are similar to those described for route AS24. A place with good facilities at which to prepare for the southbound passage is Mar del Plata, which is also the base of the whale watching boats going to the Valdez Peninsula.

Caution must be exercised when sailing close to the land because of the danger of onshore currents. From Rio de la Plata southward, the route runs very close to the coast to stay in sheltered waters and also to avoid the strong north setting Falklands Current. The winds in this region are predominantly westerly so that the risk of being caught on a lee shore is remote. Gales from the east are extremely rare and when they occur, there is always sufficient warning.

From September through to June one can get SE gales accompanied by rain and heavy seas. These winds can also bring fog. A very dense fog can also occur with NW winds along the southerly portions of this coast in the months from February to October. When the wind shifts more to the south of west the fog usually clears. In warmer weather thunder and lightning can occur with N and W winds.

Northerly gales are preceded by overcast skies, haze, lots of small cloud very high up, and some lightning. The wind increases gradually to gale

force. On the other hand southerly winds increase to gale force much more suddenly and are more violent. A sign of impending bad weather from the south is large masses of heavy cloud on the southern horizon. If a very low barometer starts rising, this may also be a sign of a wind shift to the south.

From WP AS253, off Puerto Deseado, the course can be altered for WP AS254, NE of Cape Virgins, at the entrance into the Strait of Magellan. The strait must be approached with extreme caution as the tidal range is great and the tidal streams set strongly towards Sarmiento Bank and the dangers extending from Cape Virgins.

The time of arrival at the strait should coincide with the start of the favourable tide and it must be remembered that the times of high and low water get later as one proceeds westward, until Royal Road is passed. This fact greatly assists passages from east to west and a vessel that catches the beginning of the west setting stream in the First Narrows has a good chance to ride the favourable tide for 9 hours, possibly as far as Punta Arenas. The tidal stream runs through the First Narrows from 5 to 7 knots and through the Second Narrows from 3 to 6 knots. The tidal range itself varies from about 40 feet at the east end of the strait to only 5 feet at its western end.

The usual route from the Atlantic runs through the following channels: Smyth, Sarmiento,

Inocentes, Concepcion, Largo, Messier and out through the Gulf of Peñas into the Pacific Ocean. A shorter route reaches the Pacific through Cockburn Channel.

Yachts bound for Cape Horn should sail due

south from WP AS253 to WP AS255, north of Cape San Diego, at the entrance into Le Maire Strait. Having weathered the famous Cape Horn, the rest of Patagonia can be explored by going through the Beagle Channel to reach more sheltered waters.

AS26 Magellan Strait to Falkland Islands

BEST TIME:	December to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4200			
	US: 20			
PILOTS:	BA: 6			
	US: 124			
CRUISING GUIDES:	<i>Falklands Islands Shores.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS260 Magellan 52°25'S, 68°25'W	AS261 East 52°28'S, 59°30'W	AS262 Pembroke S 51°38'S, 57°35'W	Port Stanley 51°39'S, 57°43'W	419

The Falkland Islands are best visited after sailing eastwards through the Strait of Magellan as the prevailing westerly winds make this a relatively easy passage. Caution must be exercised when leaving the strait as the strong tidal stream often sets towards the rocks extending offshore from Cape Virgins. From Dungeness Point and WP AS260 at

the entrance into the Strait of Magellan, a course can be set almost due east to WP AS261, SW of East Falkland. The route follows the south and east coasts of that island passing between it and Sea Lion Island and avoiding several dangers, such as Shag Rock. Having rounded Cape Pembroke at WP AS262, the course can be altered for Port Stanley.

AS27 Falkland Islands to South America

BEST TIME:	December to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 4200, 4201			
	US: 20			
PILOTS:	BA: 5, 6			
	US: 121, 124			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
AS271 off Stanley 51°32'S, 57°35'W	AS272 Plata 36°00'S, 56°00'W	AS274 Rio 23°05'S, 43°05'W	Rio de Janeiro 22°55'S, 43°12'W	2394

The northbound passage as far as Rio de la Plata can be done throughout the summer months and the direct route benefits both from the strong north setting Falklands Current and the prevailing W winds. North of Rio de la Plata, the prevailing

winds in summer (October to March) are NE and therefore this passage should not be attempted before April. Ideally the passage from the Falklands to Rio de la Plata should be done between December and February, with the subsequent leg

ROUTES IN THE SOUTH ATLANTIC

to Rio de Janeiro and beyond only being undertaken later, between May and September, when favourable winds prevail along the entire Brazilian coast.

From WP AS271 off Volunteer Point on East Falkland, the course for the River Plate estuary runs almost due north, on a rhumb line, to WP AS272. Boats bound for Rio de Janeiro should join the great

circle route which passes through WP AS273 and thence to WP AS274 in the approaches to Rio de Janeiro.

A passage from the Falklands to Europe or the US east coast can either incorporate the above alternative or it can join the direct routes from Cape Horn to those destinations as described in routes AT26 and AT27 (pages 177 and 178).

9

WINDS AND CURRENTS OF THE NORTH PACIFIC

The Northeast trade winds

These winds blow on the southern side of the area of high pressure, which is normally located around latitude 30°N. During the summer months this high is usually situated farther north than in winter and the NE trades can be found as far north as latitude 32°. During the summer the trade winds are predominant to the east of the 150°E meridian, being replaced to the west of this meridian by the SW monsoon of the Western Pacific Ocean.

The NE trade winds of the North Pacific Ocean are particularly consistent in both direction and strength over large areas. Their direction is more N and even NW near the American coast, becoming increasingly E towards the west. Their strength is about 10–15 knots, although they can become fresher at times and at the height of the trade wind season stronger winds of 30 knots are not uncommon. The strongest winds are likely to be encountered in winter, between November and March, but they diminish in strength as one moves south towards the equator.

The entire trade wind belt moves north and south throughout the year in accordance with the declination of the sun. However, their northern and southern limits do not run in a straight line from east to west, but in a curve which reaches its highest point in summer in about latitude 35°N about 200 miles from the American coast, the corresponding southern limit being in latitude 8°N. The northern limit of the trade winds in winter is 29°N, in about longitude 150°W, with the southern limit for the same period being the equator.

Intertropical Convergence Zone

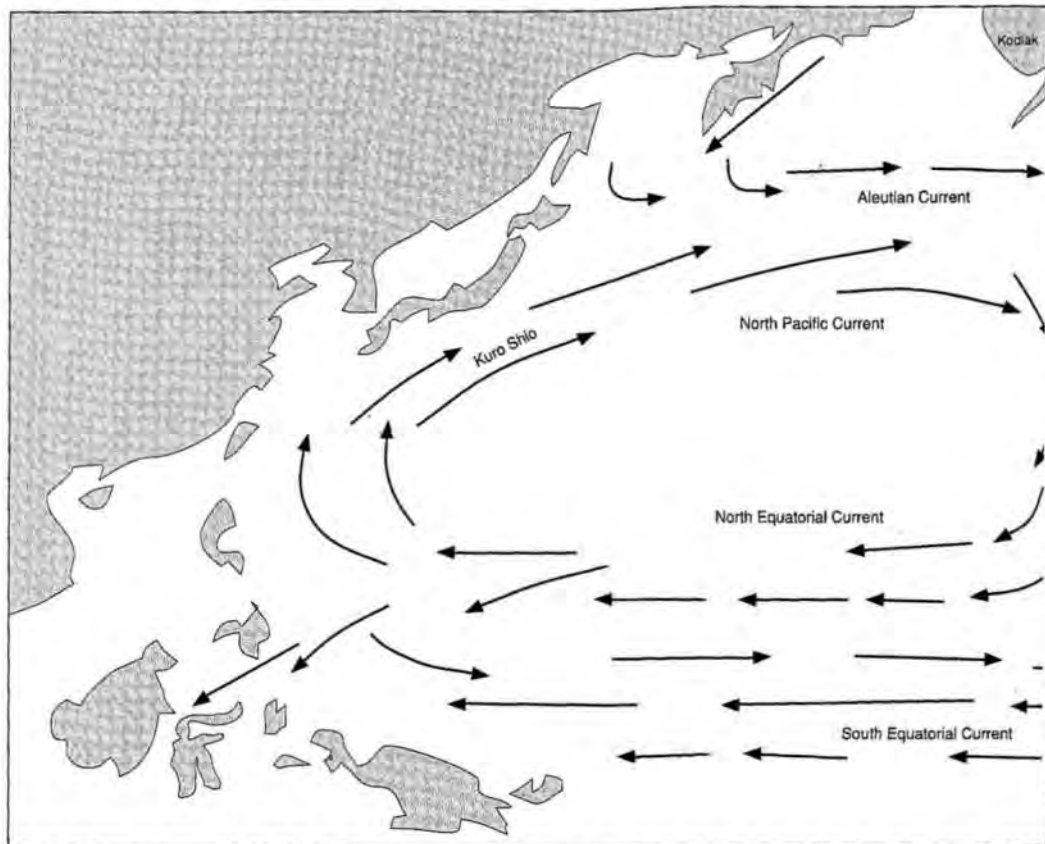
The NE trade winds are bound to the south by the ITCZ, which remains north of the equator throughout the year east of meridian 160°W. To the west of that longitude it moves south of the equator during the northern winter, from about December to April or early May. During the summer of the northern hemisphere, when the SE trade winds are at their strongest in the South Pacific, the ITCZ disappears altogether west of about 150°W, where the two trade wind systems almost run into each other and the belt of doldrums is virtually nonexistent. In the western part of the North Pacific, the ITCZ is only present during the changeover periods of the monsoons, either from mid-April to mid-May or from mid-September to mid-November.

The weather inside the zone is typical doldrums weather, with calms or very light winds alternating with squalls, heavy rain, and thunderstorms. However, as one moves west, the frequency of calms and light variable winds becomes less and the prevailing winds, even inside the doldrums, are easterlies. This is a fact worth bearing in mind if planning transequatorial passages especially west of the meridian of the Marquesas.

The Northeast monsoon

The intense cold of the winter months over the land mass of Asia creates an area of high pressure over parts of the Far East. The resulting wind circulation around this winter high produces a flow of NE winds which prevail during the winter months in

WINDS AND CURRENTS OF THE NORTH PACIFIC



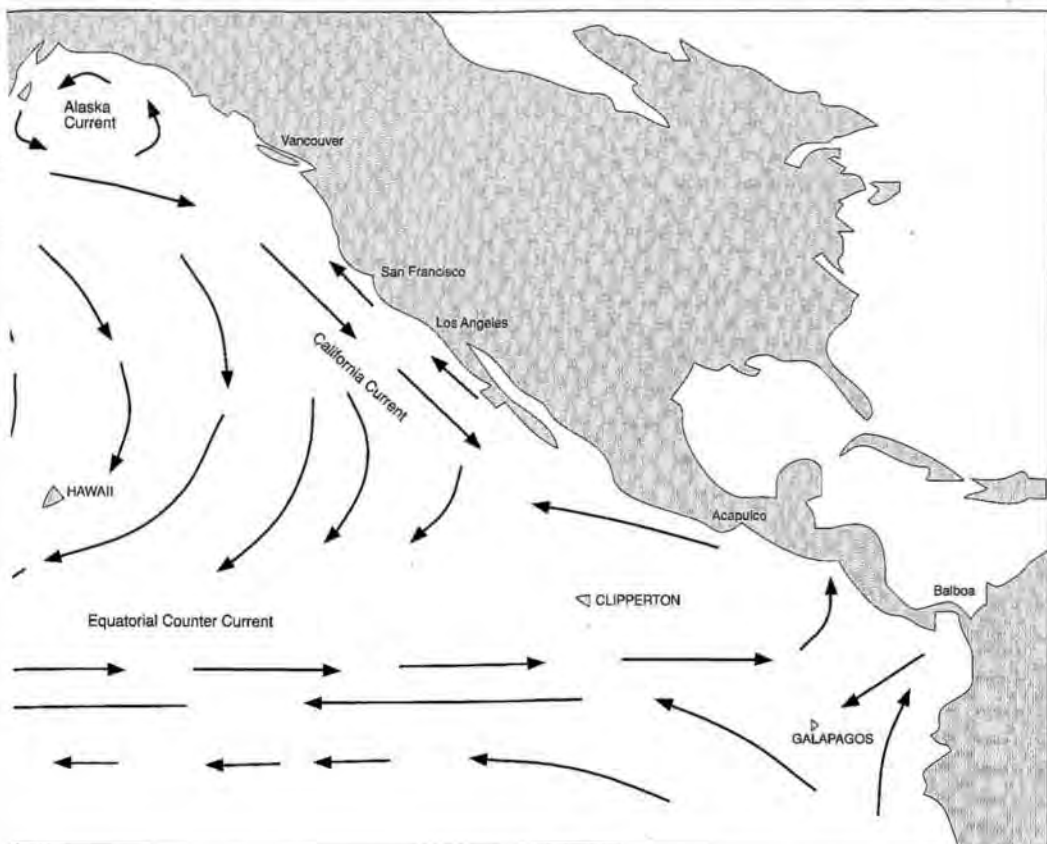
North Pacific Currents

the China Sea and adjacent waters. The NE monsoon of the Western North Pacific is particularly noticeable between latitudes 5°N and 30°N. Its eastern limits are more difficult to define as it merges with the NE trade winds of the North Pacific. Although the monsoons of the China Sea can be regarded as an extension of the monsoon system of the Indian Ocean, there is a certain difference between them. In the China Sea, it is the NE monsoon of the winter months which is the stronger and more consistent wind, whereas in the Indian Ocean, the SW monsoon of summer is the stronger constant wind. At its height, the NE monsoon of the China Sea forms a continuous wind system with the NE trade wind of the North Pacific, so that in

December and January particularly, there is a belt of strong NE winds right across the ocean from California to China.

The arrival of the monsoon depends on latitude and it starts earlier in the north and later further south. Although it commences around September at its northern limit, the NE monsoon is only fully established in the area by late November and lasts until March. During the changeover periods with the SW monsoon, in April–May and August–September, there are calms and variable winds.

The strength of the wind is also influenced by latitude, the monsoon being strongest in the north, where it blows an average 25 knots, decreasing to 15 knots and less among the islands of the



Philippines and Northern Indonesia. However, at the height of winter, in December and January, the monsoon can blow with gale force for many days, the stormiest area being the open waters between the Philippines, Taiwan, and Japan.

The Southwest monsoon

A reversal of the NE monsoon occurs during the summer when the heating up of Asia creates a large area of low pressure over the eastern part of the continent. As a result of this, the SE trade winds of the Indian and Pacific Oceans are drawn across the equator. Because of the rotation of the earth, the SE winds are deflected to the right becoming the SW

monsoon in the western part of the Pacific Ocean. In the China Sea the winds are predominantly S and SW, whereas towards Japan they are either S or SE. The area affected by the SW monsoon is generally situated west of the 140°E meridian and south of latitude 40°N. Steady SW winds are experienced in the China Sea during July, but further north the monsoon is felt less and less and variable winds become increasingly common. The weather during the SW monsoon is often unsettled and there is a high frequency of squalls, in which the wind reaches gale force.

Variables

The two monsoons and the NE trade winds are replaced on the polar side of the North Pacific by a belt of variable winds. Although it corresponds to the Horse Latitudes of the Atlantic Ocean, the variable belt of the North Pacific is much narrower and rarely exceeds 300 miles in width. The variable zone is influenced by the position of the high pressure area, which moves north in summer, when light and variable winds can be expected between latitudes 35°N and 40°N. The high moves south in summer, when it stretches from about 25°N to 30°N. The movement of air around the North Pacific high has a direct bearing on the winds of the variable zone. In the eastern half of the ocean, winds tend to be northerly in summer and merge with the NE trades. In the western part of the ocean, the direction of the winds is more southerly so that they form an extension of the SW monsoon.

Westerlies

The zone of variable winds is gradually replaced by an area of prevailing westerlies north of about latitude 35°N. These are not so boisterous as the westerlies of the Southern Ocean and the northern limit of the variables is more difficult to define. Westerly winds are more reliable both in direction and strength during the winter months, but this is hardly the time when anyone would consider cruising in the higher latitudes of the North Pacific, where the weather is very rough. In summer the weather is more benign, when fewer depressions race across the North Pacific between Japan and Alaska. The best weather can be expected in July, when light to moderate westerly winds predominate north of latitude 40°N.

Tropical storms

There are two areas of the North Pacific Ocean that are subject to tropical revolving storms: the typhoons of the Far East and the hurricanes of the eastern part of the North Pacific.

The region affected by hurricanes lies in the vicinity of the American coast, south of latitude 30°N to about latitude 10°N and west to longitude 140°W. This area includes the Pacific coasts of Mexico and Central America and extends as far offshore as longitude 140°W, an aspect that must be borne in mind by those planning to cross this area during the dangerous season. Theoretically the

hurricane season lasts from May to November, although most hurricanes have been recorded between June and October, the month with the highest frequency being September. The only four months considered to be safe are January to April, as hurricanes have occurred in December on a few occasions. As a general rule only the earlier hurricanes travel to the western limit, whereas later in the season hurricanes are more likely to stay close to the coast. Therefore if a passage through this area is undertaken towards the end of the hurricane season, it is advisable to move offshore as quickly as possible.

The region affected by typhoons covers a much larger area stretching all the way from the Caroline Islands to Japan. To the east the area is bounded by Guam and the Mariana Islands, to the west by the Philippines, Taiwan and the northern part of the South China Sea. The typhoon season is less well defined than the hurricanes of the Eastern Pacific and no month can be regarded as completely safe. However, most typhoons occur between May and December, and during this period over half the typhoons have been recorded between July and October. September is the most dangerous month, with an average of over four typhoons. The period with the least likelihood of typhoons is January to April. As no typhoons have been recorded from December to April in the area between the northern part of the China Sea and the western side of the Eastern Sea, this is considered to be the safest time for passages to and from Japan, although this coincides with the winter weather.

Currents

The surface circulation of the North Pacific Ocean resembles a huge merry-go-round in which various currents move in a clockwise direction around a cell located slightly offcentre in the northern hemisphere. The main spring of this circular movement is the North Equatorial Current which flows westward with its axis at about latitude 12°N. To the south of this current is the eastward flowing Equatorial Countercurrent, which has its southern limits between latitudes 2°N and 4°N where it is bounded by the South Equatorial Current.

The North Equatorial Current is fed mainly by the California Current and the northern branch of the Equatorial Countercurrent. Further west it is reinforced by the North Pacific Current and further still it divides in two, the southern branch revers-

ing its direction to become the Equatorial Countercurrent, while the northern branch carries on towards Taiwan and Japan. This is the main source of the Kuro Shio, a flow of warm water similar to the Gulf Stream of the North Atlantic. The main difference is that the direction of the Kuro Shio is seasonal, setting to the NE during the SW monsoon, but reversing its direction in winter, at the height of the NE monsoon.

The main direction of the Kuro Shio is NE along the southern coast of Japan. It subsequently fans out in about latitude 35°N to form the North Pacific Current. This current, reinforced by the Aleutian Current, flows in a broad band across the North Pacific towards America. East of latitude 160°E this current starts fanning out, part of it turning south, while the main body continues eastwards towards the North American continent where it turns SE.

This southerly drift changes its name to the California Current which flows into the North Equatorial Current thus completing the clockwise circulation round the North Pacific basin.

The surface circulation along the Pacific coast of Central America and Gulf of Panama is more erratic, with great seasonal variations that make predictions impossible. The Equatorial Countercurrent flows into this area and normally is deflected to the north west along the coast of Central America to join the California Current and eventually the North Equatorial Current. In the first months of the year a branch of the Equatorial Countercurrent turns south and flows into the South Pacific. In the Gulf of Panama the movement of water is more complicated, with an inflow of water at both extremes and an outflow in the centre that finally joins the South Equatorial Current.

10

ROUTES IN THE NORTH PACIFIC

In spite of the great concentration of sailing boats on the west coast of North America, particularly in California, the number of offshore routes in the North Pacific is relatively small. By far the most popular offshore destination is Hawaii; otherwise cruising boats from the US or Canada looking for an offshore challenge have to sail either to the South Pacific or down the coast of Mexico to the Sea of Cortez and beyond to Central America. One cruising destination which is gaining in popularity is Alaska, which is usually reached by Californian boats via Hawaii. In spite of the longer distances involved, a detour via Hawaii has the attraction of better winds, as a direct route from California or the Pacific Northwest would have contrary winds all the way. For the sake of simplicity, the west coast of North America has been divided into two large groups, with routes starting from either California or the Pacific Northwest, the latter including British Columbia.

Because of the paucity of offshore destinations, most cruising is coastal. Inshore passages along the coast of California and beyond are therefore beyond the scope of this book. However, because

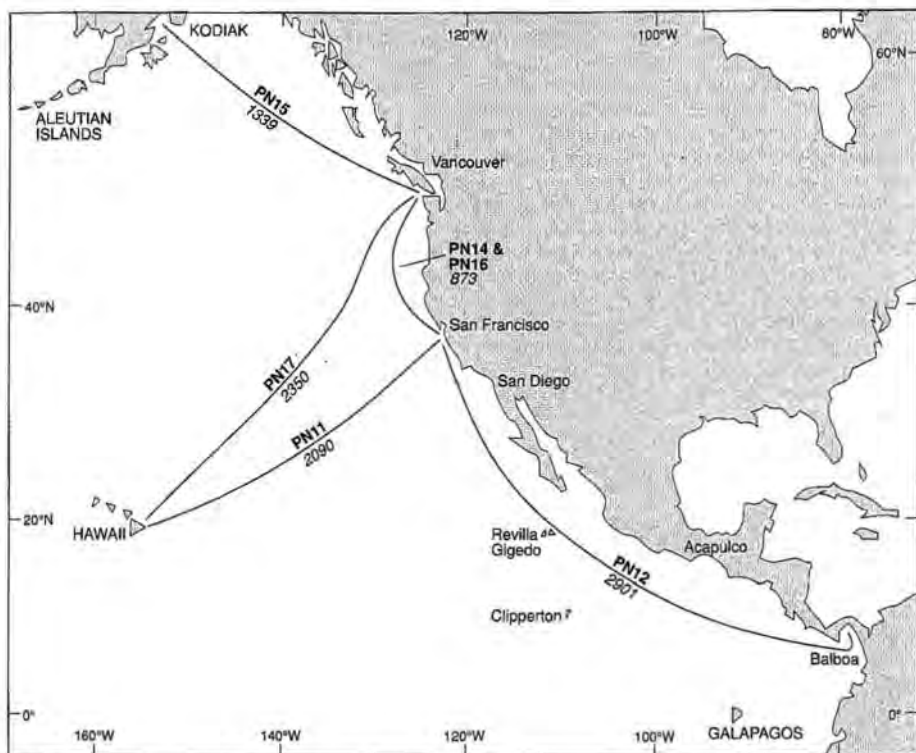
of the strength of the prevailing winds many people who might prefer to sail offshore are forced to choose the inshore tactic. The one point to remember by those heading north is to keep moving and make the best of calm weather, which rarely lasts long. It is also worth remembering that November has the lighter winds, especially along the coast of Baja California, whereas May, the other month when many boats make their way along this coast, has stronger winds. In conclusion, it is better to use November to move in both directions, and to avoid May if at all possible for the northbound passages.

The islands of Micronesia are yet to be discovered as a major cruising ground and the relatively small number of boats visiting them does not bear comparison with the continuing popularity of the South Pacific. A few of those cruising the latter eventually cross the equator, usually on their way to the Far East. On the whole, however, very few boats are seen cruising the countries of the Far East either. The situation may change in the future, as the number of locally owned boats is steadily increasing.

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PN10 ROUTES FROM THE WEST COAST OF NORTH AMERICA



PN10 Routes from the west coast of North America

The Pacific coast of North America is a more hostile area than its Atlantic counterpart, the weather is harsher, there are fewer all-weather harbours, and the chilly California Current is exactly the opposite to the warm Gulf Stream. The coast, in particular the Pacific Northwest, is therefore a real challenge, not only for the sailors setting off from that area, but also for those, undaunted by its reputation, who have decided to visit this beautiful region. The Pacific Northwest has indeed a well earned reputation for gales, rain, and poor visibility. The prevailing winds are either from the northwest or less frequently from the southeast. In summer, from May to September, northwest winds predominate, although some northeast winds also occur. In winter, as well as the prevailing northwesterlies, southeast winds, often of gale force, are more common. Further south, the hur-

ricane season is from June to October, when the tropical areas should be avoided. Mexico and Baja California are hit by an average of six hurricanes every year, so this part of Mexico should be avoided during summer and early autumn.

The premier destination for anyone contemplating an offshore cruise from California, the Pacific Northwest or British Columbia is undoubtedly Hawaii. For those who lack the time for a longer cruise to the South Pacific, Hawaii offers the chance of a Polynesian landfall which can be reached during an extended summer vacation. For those who do not wish to return straight away, Hawaii is an excellent springboard for voyages west, to Micronesia and the Far East, or south, to Tahiti and the rest of Polynesia.

The major meteorological feature affecting routes between the mainland and Hawaii is the

ROUTES IN THE NORTH PACIFIC

North Pacific high. In summer it reaches its most northwesterly position in about 38°N, 150°W, while in winter it moves southeast to approximately 30°N, 130°W. The high is particularly stable between June and August, which is the best time for return passages to the mainland, although one should stay north of the tropics to avoid any hurricane forming farther south.

Those who are heading south from California bound for some distant destination, be it Panama, Galapagos, Marquesas, or Tahiti, are faced with two choices: either to head offshore and sail direct, or hug the coast and cruise in shorter stages. Both alternatives have certain advantages, but as this book deals with ocean routes only, the second alternative will not be dealt with in detail. Some people have successfully combined these two alternatives

by cruising along the coast for some distance and then setting off for distant destinations either from Mexico or Costa Rica. This has the advantage of shaking down both boat and crew while still within a short distance of stateside facilities.

The advantage of an offshore passage south from California is that the prevailing NW winds will put the boat on a broad reach or run, as soon as the coast has been safely left behind. Because of the dependability of these prevailing winds, it is preferable to wait for a period of settled weather with a long term forecast of N or NW winds before setting off on a long passage. Regardless of the final destination it is advisable to head offshore immediately on leaving the coast, as winds tend to be steadier about one hundred miles from the mainland.

PN11 California to Hawaii

BEST TIME:	April to May, October to November			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4807 US: 51, 520			
PILOTS:	BA: 8, 62 US: 152			
CRUISING GUIDES:	<i>Charlie's Charts of the Hawaiian Islands, Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN111 Angeles 33°45'N, 118°20'W	PN112 30°00'N, 130°00'W PN113 26°00'N, 140°00'W PN114 22°00'N, 150°00'W	PN116 Hawaii NE 19°48'N, 155°00'W	Hilo 19°44'N, 155°04'W	2133
PN115 Francisco 37°40'N, 122°30'W	PN112 PN113 PN114	PN116 Hawaii NE	Hilo	2090

This route enjoys favourable winds throughout the year, although few boats attempt to make the passage in winter, both on account of the cold and the high proportion of strong winds. On the other hand, summer months carry the risk of tropical storms, August and September being considered the most dangerous months. Although very few of these storms reach as far west as Hawaii, their tracks sometimes swing to the NW and thereby cross the sailing routes from the mainland. Between the two extremes, the threat of winter gales or sum-

mer hurricanes, there are some months when sailing conditions along this route can be perfect, May and November fulfilling most of these criteria. Good weather can also be found in April, although an early start is usually associated with colder temperatures. Even when the winds are fair, the sky is sometimes overcast making life difficult for those who are keen to try their hand at celestial navigation on this long offshore passage.

The winds for the first few hundred miles are N or NW becoming NE and finally E closer to Hawaii.

PN10 ROUTES FROM THE WEST COAST OF NORTH AMERICA

As the great circle route goes too far north it may be better to sail a rhumb line. However, this will depend on the position of the North Pacific high and the extent of the NE trades, the northern limit of which moves in relation to the high. If it is felt that the course may pass too close to the position of the high, it is better to detour slightly to the south into an area with less pressure than towards the centre of the high.

Boats leaving from Los Angeles take their departure at WP PN111, from where the route goes south of the great circle course to WP PN112. From there, the route runs through WPs PN113 and PN114 before the course can be altered for the Hawaiian port of destination. Boats starting from San Francisco should follow the same advice and set a course which will take them sooner into the area of NE trade winds. From WP PN115, off the

main shipping channel, the course should be set for WP PN112 and thence along a similar route as the one recommended for boats leaving from Los Angeles. The above intermediate points are only guidelines and the actual route should be dictated by the weather conditions prevailing at the time.

When making landfall, because of increased wind strengths in channels separating the Hawaiian islands, it is usually better to gain the lee of the islands rather than approach them from windward. The best landfall in Hawaii for boats arriving from the continent is Hilo, as it is to windward of all other ports in the archipelago and therefore a perfect starting point for a cruise among the islands. Honolulu (21°18'N, 157°52'W), because of its position, is better left for the end of a Hawaiian cruise.

PN12 Southbound from California

BEST TIME:	November to May			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051			
	US: 51			
PILOTS:	BA: 7A, 8			
	US: 152, 153			
CRUISING GUIDES:	<i>Charla's Charts of the Western Coast of Mexico, Cruising Guide to the Sea of Cortez, Cruising Guide Acapulco to the Panama Canal.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN121 Diego 32°40'N, 117°20'W	PN122 31°50'N, 117°10'W			
	PN123 28°00'N, 116°20'W			
	PN124 21°30'N, 111°25'W			
	PN125 16°30'N, 102°00'W			
	PN126 Colba 7°10'N, 82°00'W			
	PN127 Frailles 7°10'N, 80°00'W	PN128 Panama S 8°50'N, 79°30'W	Balboa 8°57'N, 79°34'W	2901

The best time to make this passage is during the winter months, when the prevailing winds off the Mexican coast are northerly. There is a favourable current along the coast of Mexico, but a contrary current further south along the coast of Central America. Boats sailing nonstop along this route should stay at least 100 miles off the coast to avoid

the influence of land breezes and also the many ships that ply the coast closer inshore. The route runs parallel to the coast of Central America and gradually curves in to enter the Gulf of Panama at Cabo Mala.

Taking its leave of the USA at WP PN121, south of San Diego, the route runs parallel to the coast of

ROUTES IN THE NORTH PACIFIC

Baja California to WPs PN122, PN123, and PN124. The course is then altered at WP PN125 to WP PN126 before entering the Gulf of Panama at WP PN127 off Cabo Mala in the approaches to the Panama Canal. Boats intending to transit the Canal should go straight to the Balboa Yacht Club. See page 489 for further instructions.

The other alternative, favoured by many, is to sail the entire distance in easy stages by calling at the different ports en route. If this option is chosen,

more attention should be paid to local weather conditions, particularly during the winter months January to March when very strong winds occur in the gulfs of Tehuantepec and Papagayo. These are described in detail in PN20 (page 207). The inshore route is not recommended during the summer, when there is a risk of hurricanes in the area and the winds are less consistent, with long periods of calms. More details on destinations in Central America are given in route PN27 (page 215).

PN13 Northbound from California

BEST TIME:	April
TROPICAL STORMS:	None
CHARTS:	BA: 4050 US: 501, 520
PILOTS:	BA: 8, 25, 26 US: 152
CRUISING GUIDES:	<i>Charlie's Charts of the US Pacific Coast.</i>

Northbound passages from California are difficult to plan as it is quite rare that one can be certain of favourable winds. Therefore most people plan their cruise to include as many coastal stops as possible. In this way it is possible to take advantage of early morning breezes. One suggestion for an easier passage north is to leave in April with one of the last southerly gales. At this time of year they are usually milder than those of the winter months. Although it may be tempting to ride one of these storms, one should be very careful when running along the coast before such a storm as most ports are on a dangerous lee shore.

During the summer one has to be prepared for a lot of beating, often into strong winds. If one is planning to motor it is usually better to do this at night when the winds are lighter. Especially along the north coast of California the trip can be very tough because of the strong northerly winds which blow throughout the summer. However, those who have time to make the best of the adverse weather will be rewarded for their efforts. The coast of Northern California is replete with beautiful harbours providing shelter from the prevailing summer winds. Among them Tomales Bay and Mendocino should not be missed.

PN14 California to British Columbia

BEST TIME:	May to June
TROPICAL STORMS:	None
CHARTS:	BA: 4801 US: 501
PILOTS:	BA: 8, 25, 26 US: 152, 154
CRUISING GUIDES:	<i>Charlie's Charts North to Alaska, Cruising Guide to British Columbia.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
PN141 Reyes 37°55'N, 123°00'W	PN142 40°00'N, 128°30'W	PN143 Flattery 48°25'N, 124°50'W	Victoria 48°25'N, 123°24'W	873

Both in winter and summer NW winds predominate along the North American coast, which makes a direct offshore passage very difficult if not impossible. There are various ways of dealing with these headwinds and the most radical suggestion is that the coast should be left immediately on a route heading offshore for about 200 miles before it turns north. The most favourable tack should then be taken until the latitude of the port of destination is reached. A new course can then be set to approach the coast on the tack that would put the boat to windward of the destination. An inshore route can also be followed by sailing in shorter hops along the coast and going into a port for shelter as soon as the weather becomes threatening. Yet another alternative is to try and sail parallel to the coast about 30 miles offshore so as to be within range of VHF weather broadcasts and shelter if necessary. In case of choosing one of the inshore alternatives, great care must be paid not only to the weather but also the difficulty of crossing river bars or entering some of the harbours if the winds blow onshore. If the offshore alternative is chosen, from Reyes Point an initial course should be sailed to a point about 200 miles offshore. Whether

such a relatively direct route can be sailed will depend entirely on the windward performance of the boat. The recommended landfall is off Cape Flattery, in the approaches to Juan de Fuca Strait.

Extreme caution is necessary in the approaches to the Juan de Fuca Strait because of heavy shipping and strong currents. Shipping separation zones are in operation, with the southern lane being used by arriving ships and the northern lane reserved for outgoing traffic. The lanes diverge at designated points so as to allow ships to turn either north towards Vancouver or south towards Seattle. To complicate matters, there is often a large number of fishing boats around the Swiftsure Bank, east of the entrance to the strait. Traffic in the area is controlled by Tofino Radio (VHF channels 16 and 74). Incoming vessels are requested to report when due south of Amphitrite Point. The station operates a regular roll call, every ship reporting their position, speed, and course. In bad visibility the station will advise ships that are in the vicinity of a small boat's position. The station will also assist yachts with directions and may even track such vessels on radar.

PN15 Alaska to British Columbia

BEST TIME:	June to August
TROPICAL STORMS:	None
CHARTS:	BA: 4050 US: 531
PILOTS:	BA: 4, 25, 26 US: 152, 154
CRUISING GUIDES:	<i>Cruising Guide to Prince William Sound, Cruising Guide to British Columbia, Charlie's Charts North to Alaska.</i>

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
PN151 Kodiak E 57°45'N, 152°00'W	PN152 53°00'N, 150°00'W	PN153 Flattery 48°25'N, 124°50'W PN154 Scott 51°00'N, 129°00'W	Victoria Victoria	1339 1075
PN155 Sedanka 53°50'N, 165°55'W	PN156 51°00'N, 165°00'W	PN153 Flattery PN154 Scott	Victoria Victoria	1777 1519

The winds in the Gulf of Alaska are variable in direction during the summer months, with a slight predominance of westerly winds. Later in the season, SE winds are not uncommon making east-bound passages across the Gulf difficult. Also contrary is the Aleutian Current, which sets west-

ward across the Gulf. Fog can be another hazard during the crossing, but gales are rare in summer. Prince Rupert harbour, where entry formalities into Canada can be completed, is reached through Dixon Strait, between Prince of Wales and Graham Islands.

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Because the sailing season in Alaska is so brief, most people are in a hurry when the time comes to move south. Although a faster passage can be made on an offshore route, few people choose to miss the unsurpassed beauty of the inshore route that threads its way past countless islets and inlets along British Columbia's fragmented coast. A recommended alternative is to cruise the area in reverse order by sailing from British Columbia to Alaska in short stages, cross the Gulf of Alaska in summer and sail back to British Columbia at the end of the summer cruising season. The sailing season is very short and lasts from May to the middle of September. In July, the North Pacific high may reach as far as the Prince William Sound, ensuring light winds and pleasant weather.

Boats setting off on the offshore route from either

Dutch Harbour or Kodiak should sail due south for 200-300 miles to avoid the area affected by the lows tracking across the Pacific and then pick up the direct course with the help of the prevailing westerlies. Boats leaving from Kodiak, from WP PN151 should set a course for WP PN152. From there the course can be altered to reach Victoria by going south of Vancouver Island through the Juan de Fuca Strait, making landfall off Cape Flattery at WP PN153. An alternative is to approach Vancouver Island through Queen Charlotte Sound by making landfall north of Cape Scott at WP PN154. Similar directions apply for those leaving from Dutch Harbour on Unalaska Island. From WP PN155 the initial course leads to WP PN156 before the course is altered for one of the landfalls suggested above.

PN16 British Columbia to California

BEST TIME:	May to October				
TROPICAL STORMS:	None				
CHARTS:	BA: 4801				
	US: 501, 530				
PILOTS:	BA: 8, 25				
	US: 152, 154				
CRUISING GUIDES:	<i>Charlie's Charts of the US Pacific Coast, Cruising Guide to California's Offshore Islands.</i>				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
PN161 Flattery	PN162				
48°25'N, 124°50'W	46°30'N, 126°30'W				
	PN163	PN164 Reyes	San Francisco	766	
	40°00'N, 126°30'W	37°55'N, 123°00'W	37°50'N, 122°15'W		

Winds along this route are always favourable and the south-setting California Current provides an added bonus. The offshore route is to be preferred for most southbound passages and, once chosen, one should stay at least 100 miles off the coast. Because of the pressure gradient between the offshore high and the continental low pressure system, winds tend to be stronger and seas higher more than 60 miles from land than closer inshore. However, because of the drawbacks of the inshore route, which are described below, the offshore route is to be preferred. From WP PN161, off Cape Flattery, the initial course goes to WP PN162. From there the route goes due south to the latitude of Cape Mendocino before the course is altered at WP PN163 for the port of destination. If the destination

is San Francisco, landfall is made at WP PN164 off Reyes Point, from where Bonita Channel leads into San Francisco Bay.

Because of the stronger winds and bigger swell further offshore, some people prefer the inshore route. This is an attractive alternative when sailing in the other direction, but is less attractive to southbound boats determined to cover the distance in the shortest time possible. Because several harbours have bars and are difficult or dangerous to enter when there is a heavy swell, extreme caution is needed if sailing the inshore route. Another hazard along this coast is fog, which often reduces visibility drastically and can be extremely dangerous because of the high amount of shipping.

PN17 Pacific Northwest to Hawaii

BEST TIME:	May to June, October			
TROPICAL STORMS:	None			
CHARTS:	BA: 4050			
	US: 50, 520			
PILOTS:	BA: 25, 62			
	US: 152, 154			
CRUISING GUIDES:	<i>Landfalls of Paradise, Charlie's Charts of the Hawaiian Islands.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN171 Flattery 48° 25' N, 124° 50' W	PN172 40° 00' N, 130° 00' W	PN173 30° 00' N, 140° 00' W	PN174 Hawaii NE 19° 48' N, 155° 00' W	Hilo 19° 44' N, 155° 04' W 2350

Good weather conditions prevail throughout the summer months, but in order to avoid the hurricane season, the passage should be planned for late spring or early summer. Although the route crosses an area where tropical cyclones have occurred in the past, the danger of encountering such a storm at the recommended time is fairly remote. However, weather forecasts should be listened to regularly during the summer to avoid any tropical storms which may be heading that way. To avoid westerly winds or straying into the North Pacific high at the beginning of the voyage, setting a direct course to Hawaii on departure is not recommended. Better conditions will be found by taking a southerly course, which will benefit both from northerly winds and the favourable current. It is generally recommended that the course should not

be altered for Hawaii until the latitude of San Francisco is reached. Although a great circle route can be taken to Hawaii from about 40° N, it is usually better to stay slightly south of the rhumb line. The NE trades will be met somewhere between latitudes 28° and 30° N, from where the winds should remain favourable all the way to Hawaii.

Leaving from WP PN171 the route passes through two intermediate waypoints PN172 and PN173 before the course can be altered for the Hawaiian port of destination. For boats arriving from the NE the most convenient port of entry is Hilo on Hawaii Island. Landfall can be made at WP PN174 NE of the Big Island and some five miles from Hilo itself.

PN20 PACIFIC ROUTES FROM CENTRAL AMERICA AND MEXICO

PN21 <i>Panama to Central America and Mexico</i>	209
PN22 <i>Central America and Mexico to California</i>	210
PN23 <i>Panama to British Columbia</i>	212
PN24 <i>Panama to Alaska</i>	213
PN25 <i>Panama to Hawaii</i>	214
PN26 <i>Central America and Mexico to Hawaii</i>	215
PN27 <i>Central America and Mexico to Panama</i>	215

For boats which have transited the Panama Canal there is a rather limited choice of routes heading out into the Pacific. Basically, there are two options:

either to stay in the North Pacific, where there is a narrow range of initial destinations, or to head towards the South Pacific, where the choices mul-

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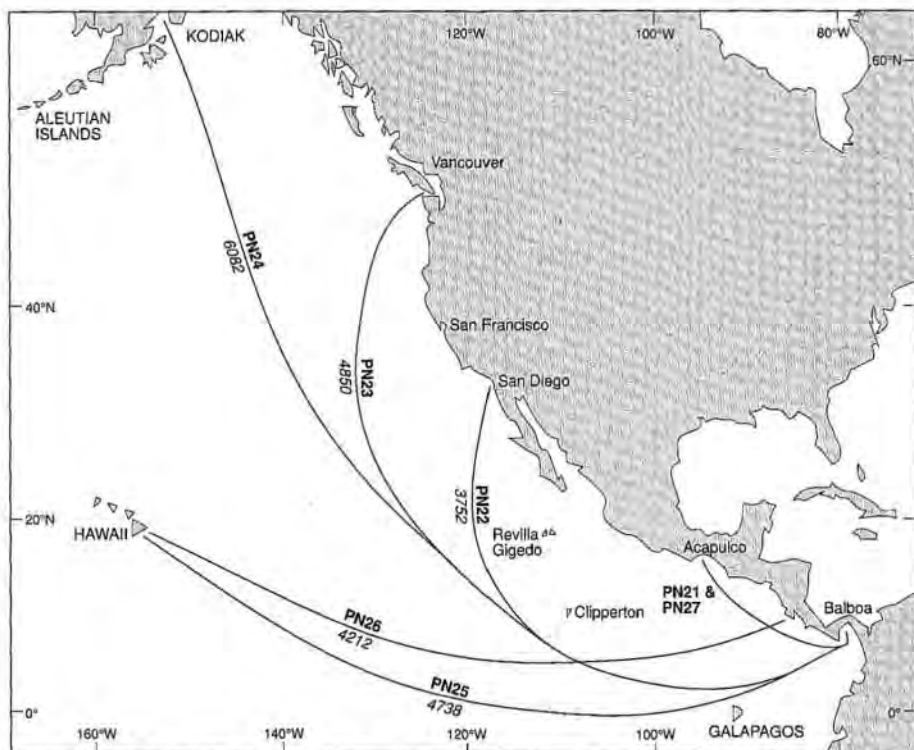
tively constantly as one moves west. Similarly a considerable proportion of offshore routes from Central America are also southbound and transequatorial. These transequatorial routes and routes in the South Pacific are described in chapters 11 and 13.

Sailing directly from Panama to the west coast of North America is a difficult undertaking. An alternative preferred by many as the best way to reach California, and especially ports further north, is to sail first to Hawaii. Panama is a good starting point for sailing to ports on the west coast of Central America and as the distances involved are relatively short, even if unfavourable conditions are encountered at least they do not have to be endured for too long. Because the hurricane season affects most of this area between June and October, sailing to Mexico or California during these months should be avoided. Therefore if heading north from

Panama it is best to plan to transit the Canal between November and April, so as to avoid the danger of being caught by a hurricane off the coast of Central America.

Before sailing out of the Gulf of Panama, some boats stop at the Las Perlas Islands, which have some excellent anchorages. They belong to Panama and one is not allowed to stop there after having cleared out in Balboa, without having obtained a cruising permit.

The most popular route leaving from Panama is that to the Galapagos Islands (route PT12). Most boats bound for the South Pacific take advantage of the conveniently placed Galapagos Islands to make at least a brief stop in these islands made famous by Charles Darwin. It is no longer permitted to cruise around the islands, which are a protected nature reserve, but a 72 hour stop can be



PN20 Pacific routes from Central America and Mexico

made at the discretion of the port captain at either of the two ports of entry, Baquerizo Moreno (Wreck Bay) on San Cristobal Island and Puerto Ayora (Academy Bay) on Santa Cruz Island. Because of these restrictions, some boats avoid the Galapagos Islands altogether and head straight for the Marquesas and French Polynesia (PT13).

Those who want to visit ports along the west coast of South America are faced with a tough voyage against wind and current (PT 11). A few boats make this trip every year showing that, in spite of all difficulties, it can be done. The alternative is to postpone visiting South America until one is farther west in the Pacific when Chile can be easier reached with the help of favourable westerly winds of higher latitudes. However, this is a long and tough trip which may be less attractive than a beat against the Humboldt current. The major attraction of such a foray down the coast of South America is the opportunity to visit Ecuador and Peru as well as some rarely frequented islands such as Easter, Pitcairn or Gambier.

Apart from the occasional norther, rare westerly, or summer hurricane, the west coasts of Central America could be described as having a truly Pacific weather with little wind and smooth

seas. Local conditions along the coast do vary very much with the topography of the land. Two local weather phenomena, which affect particularly the inshore routes, are the very strong winds which take their name from the gulfs where they occur, Papagayo and Tehuantepec. The worst period is from October to April, with the highest frequency between the end of November and the end of January. The effect of these winds can be felt as far as 150 miles offshore.

Papagayos are caused by an intensification of the NE trade winds on the Caribbean side of the isthmus. The winds reach the Pacific through a gap in the Cordillera where they blow with great force. Further north, the *Tehuantepecers* are caused by a build up of atmospheric pressure over the Gulf of Mexico, the resulting winds blowing over the continental divide and being felt most strongly in the Gulf of Tehuantepec. Both winds reach gale force 8 and even 9, and are very difficult to predict locally. However, by following weather forecasts for the Gulf of Mexico and Caribbean area it is usually possible to predict when changes in weather conditions on the Atlantic side of Central America or Mexico will affect its Pacific shores.

PN21 Panama to Central America and Mexico

BEST TIME:	April to May, November
TROPICAL STORMS:	June to October
CHARTS:	BA: 4051 US: 51
PILOTS:	BA: 7, 8 US: 153
CRUISING GUIDES:	<i>Cruising Guide Acapulco to the Panama Canal, Charlie's Charts of Costa Rica, Charlie's Charts of the Western Coast of Mexico.</i>

Northbound passages to ports on the Pacific coast of Central America are always difficult due either to contrary winds or prolonged periods of calms. Although a favourable current can be expected as far as the Gulf of Fonseca, from there onwards the current is mostly contrary. One should be prepared to take advantage of every shift of wind and also to use the engine when necessary in order to counter the unfavourable current. The area is prone to thunderstorms with intense lightning.

Because of these factors, most people prefer to treat this route as a coastal hopping exercise. Stops can be made in all Central American countries,

Costa Rica, Nicaragua, Honduras, El Salvador, Guatemala, and there are several attractive cruising areas on the way. The reception extended to visiting yachts by the various Central American countries depends very much on the political situation at the time, and occasionally also on the nationality of the yacht in question.

One of the most attractive stops on the coast is Golfito, in Costa Rica (8°36'N, 83°12'W). In Nicaragua the ports of Corinto (12°28'N, 87°11'W) and San Juan del Sur (11°15'N, 85°53'W) have attracted mixed comments, while the Honduran port of San Lorenzo (13°25'N, 87°27'W) has been

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recommended as an emergency stop. In El Salvador the situation has improved dramatically with the cessation of hostilities and a good place to stop is Acajutla (13°36'N, 89°50'W), which is one of El Salvador's official ports of entry, the other being Cutuco (13°19'N, 87°49'W). On entering the Gulf of Fonseca, the Salvadorean Coast Guard should be contacted on VHF channel 16. Stopping at one of the ports on the Pacific coast of Guatemala has little attraction, but beyond that stretches the long coast of Mexico, its main cruising attraction being located in its northern part - Baja California and the Sea of Cortez.

Detailed directions for this inshore route, which

consists mostly of coastal cruising, are beyond the scope of this book. However, attention must be drawn to the two areas where the weather can seriously affect the inshore route. These are the gulfs of Tehuantepec and Papagayo, where the strong local winds described in the introduction to this section can occur. Both north and southbound inshore passages should attempt to transit the Gulf of Tehuantepec at the change of seasons, either around the middle of May or early in November. January and February are the months to avoid because of the high frequency of these gale force winds.

PN22 *Central America and Mexico to California*

BEST TIME:	March to May, October to mid-November (offshore) February to May, mid-October to mid-November (Inshore)			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051 US: 51			
PILOTS:	BA: 7, 8 US: 152, 153			
CRUISING GUIDES:	<i>Charlie's Charts of the US Pacific Coast, Cruising Guide to the Sea of Cortez.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN22A				
PN220 Panama S 8°50'N, 79°30'W	PN221 Mala 7°30'N, 79°30'W PN222 3°00'N, 105°00'W PN223 Clipperton W 10°00'N, 110°00'W PN224 20°00'N, 120°00'W		San Diego 32°42.5'N, 117°14'W Los Angeles 33°43'N, 118°16'W	3752 3803
PN220 Panama S	PN221 Mala PN222 PN223 Clipperton W PN225 30°00'N, 125°00'W		San Francisco 37°50'N, 122°15'W	4096

PN20 PACIFIC ROUTES FROM CENTRAL AMERICA AND MEXICO

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN22B				
PN220 Panama S	PN221 Mala			
	PN226			
	0°00'N, 105°00'W			
	PN227		San Diego	4219
	20°00'N, 125°00'W		Los Angeles	4248
			San Francisco	4230
Route PN22C				
PN220 Panama S	PN228 Frailes			
	7°10'N, 80°00'W			
	PN229 Colba			
	7°10'N, 82°00'W			
	PN2210 Costa Rica N			
	10°00'N, 86°20'W			
	PN2211 Clipperton N		San Diego	3278
	10°30'N, 109°00'W		Los Angeles	3353
			San Francisco	3659

For boats leaving from Panama, this can be a long and arduous trip. For this reason it has been suggested that it is easier to sail from Panama to Hawaii and thence to the west coast of North America, rather than direct to California, especially for those who like long offshore passages and are not pressed for time. If a detour to Hawaii is considered, details for that passage are given in route PN25.

A nonstop passage from Panama to California should be undertaken well offshore where better winds can be expected, even if a longer distance has to be covered. After leaving the Gulf of Panama, one should attempt to reach the SE trade wind area as soon as possible to take full advantage of both the SE winds and favourable current. From June to January, the recommended route PN22A runs between the Galapagos Islands and latitude 5°N as far as meridian 105°W. At WP PN222 the course is altered to pass west of Clipperton Island at WP PN223. For southern Californian ports (Los Angeles, San Diego) the most favourable tack should be taken after WP PN224 has been passed. After picking up the NE trade winds and if the destination is San Francisco, course is altered for WP PN225 from where the course sailed depends entirely on the winds that are encountered.

From February to May after leaving the Gulf of Panama the recommended route (AN22B) passes south of the Galapagos Islands. It then heads west as far as WP PN226 and then to WP PN227 before

altering course to the NW into the NE trade wind zone. However, if winds are favourable after passing Cabo Mala, a more direct route can be sailed to California. The initial course on this route (PN 22C) runs parallel to the coast of Central America as far as Costa Rica, keeping only about 20 miles off the coast. From northern Costa Rica at WP PN2210, the route heads due west for about 1000 miles to WP PN2211, just north of Clipperton Island. The route then runs parallel to the mainland coast in a NW direction gradually curving towards the port of destination by using the existing winds to best advantage. If taking this route one must be prepared to motorsail when necessary, especially during the first leg from Panama northwards. This route is often preferred by delivery skippers, who recommend its use particularly during the first months of the year.

Another alternative is to stay relatively close to the coast all the way, the advantage of this course of action being that one can find shelter in some of the ports en route such as Puerto Madero or Salina Cruz. The first part of this coastal route is described in PN21. Two local weather phenomena must be taken into account if taking this inshore route during winter and they are the strong winds in the gulfs of Papagayo and Tehuantepec. The worst period is from October to April, with the highest frequency between the end of November and the end of January. The effect of the winds can be felt as much as 150 miles offshore. The advice

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given by captains of boats plying this coast regularly is to stay as close inshore as safety will permit. There are several ports en route where shelter can be sought, although by sailing close to the shore one should be able to handle even the strongest winds.

When sailing north from Panama one should plan to be north of Cabo San Lucas by 1st June, especially as some insurance companies make this provision in their policies in view of the hurricane season in Central America. This consideration, coupled with weather conditions in the Caribbean, make it advisable to plan on transiting the Panama Canal early in the year, so as to have plenty of time either to reach the west coast before the onset of the hurricane season or to make alternative arrangements.

The northbound routes from Mexico are never easy, but if the weather is watched carefully, the occasional window will provide favourable conditions. Often in November, and occasionally

December, the approach of a cold front in the North Pacific will stop the prevailing NW winds and bring calms or light winds. In late spring, when there are strong headwinds offshore, close inshore it is often possible to make good progress with the help of the diurnal land and sea breezes. The recommended tactic is to stay near the shore during the calm night and morning hours, and then tack offshore in the afternoon. Being close to shore, it is then possible to find an anchorage when conditions are not favourable.

Boats taking the offshore route from Panama or Costa Rica can break the trip at offshore islands, such as Cocos Island (5°30'N, 87°00'W), 285 miles off Costa Rica. The island is a nature reserve and has some resident wardens, but boats are allowed to stop. Even more remote is the French possession, Clipperton Island (10°17'N, 109°15'W), which is uninhabited, although occasionally it is visited by meteorologists and other scientists.

PN23 Panama to British Columbia

BEST TIME:	April to May, November			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4050, 4051			
	US: 51, 50			
PILOTS:	BA: 7, 8, 25			
	US: 152, 153, 154			
CRUISING GUIDES:	<i>Cruising Guide to British Columbia.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN23A				
PN230 Panama S	PN231 Frailes			
8°50'N, 79°30'W	7°10'N, 80°00'W			
	PN232 Coiba			
	7°10'N, 82°00'W			
	PN233		Victoria	4850
	20°00'N, 130°00'W		48°25'N, 123°24'W	

Directions for this route are similar to those for route PN22 and in fact skippers are faced with exactly the same dilemma whether they intend to sail from Panama to California or all the way to British Columbia. The choice is between a relatively direct route along the coast of Central America, an indirect offshore route or a grand detour via Hawaii. If the prospect of such a long detour via Hawaii is not acceptable, the choice is between the

other two routes, both of which have advantages and also some serious disadvantages. The choice of route should depend primarily on the windward performance of the boat itself as much of the voyage will be hard on the wind, and for this reason those who are not prepared to face a beat of several thousand miles, or whose boat may not be up to the challenge, should perhaps reconsider their plans.

The offshore route (PN23A) offers a greater cer-

PN20 PACIFIC ROUTES FROM CENTRAL AMERICA AND MEXICO

tainty of favourable winds for the first half of the voyage but then becomes a hard beat against the prevailing winds. The route that runs parallel to the coast (PN23B) is shorter but depends more on the use of the engine. In both cases the final leg north of latitude 30°N may prove to be the toughest because of the high proportion of N and NW winds during the summer months. No waypoints are given for the second route as the best way to go should be decided by the weather conditions at the time.

If route PN23A is sailed in April or May, from WP PN232, off Coiba Island, the shortest route should be sailed to WP PN233. From there, the route continues due north following as closely as possible meridian 130°W before the course is

altered for the coast. Much will depend on the position of the North Pacific high, and one may either have to go further west to avoid it altogether, or power through it, if one is so inclined. In the first instance, depending on the season, it may be necessary to go as far north as latitude 43°N before turning towards the coast of British Columbia (see also route PN32, page 219). If the passage is undertaken in November, the time of arrival in British Columbia will be so late that one should consider spending the winter in Hawaii. At that time of year, a great circle route can be sailed from Panama to Hawaii and one can count on both favourable winds and current for almost the entire distance.

PN24 Panama to Alaska

BEST TIME:	May			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4050, 4051 US: 51, 50			
PILOTS:	BA: 4, 7, 8 US: 152, 153			
CRUISING GUIDES:	<i>Charlie's Charts North to Alaska.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN240 Panama S 8°50'N, 79°30'W	PN241 Fralles 7°10'N, 80°00'W PN242 Coiba 7°10'N, 82°00'W PN243 22°00'N, 140°00'W PN244 30°00'N, 150°00'W	PN246 off Kodiak	Kodiak	6082
	PN245 Kodiak SE 57°23'N, 152°00'W	57°45'N, 152°15'W	57°47'N, 152°25'W	

A detour via Hawaii (see route PN25) has certain advantages over a nonstop passage to Alaska, especially between September and March when it would be either too late or too early to head for Alaska. From April to August the more direct route should be considered, the best month for a north-bound passage probably being May as it means arriving in Alaska at the beginning of the summer sailing season. This also means that the area affected by tropical storms will have been sailed through during the safe season.

Directions as far as latitude 30°N are similar to

those given for route PN23. A first recommended intermediate waypoint is PN243, but whether one can sail a direct course for this point will depend entirely on the performance of the boat, as much of the passage will be close on the wind. From PN243 a new course is set for WP PN244, from where the route should arc northwards by trying to keep west of the North Pacific high. North of latitude 40°N favourable winds can be expected for most of the way, as above 40°N an average of 70 per cent of the winds are from between S and W. The weather gets increasingly cold as higher latitudes

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are reached and north of latitude 40°N there is also a high proportion of fog.

From WP PN244 the best course is sailed for WP

PN245, southeast of Kodiak Island. From that point the route runs along the east coast of that island to WP PN246 from where it enters Kodiak Harbour.

PN25 Panama to Hawaii

BEST TIME:	March to May, November			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051 US: 51			
PILOTS:	BA: 7, 62 US: 152, 153			
CRUISING GUIDES:	<i>Charlie's Charts of the Hawaiian Islands, Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN25A				
PN250 Panama S	PN251 Fralles			
8°50'N, 79°30'W	7°10'N, 80°00'W			
	PN252	PN257 Hawaii SE	Hilo	4738
	3°00'N, 110°00'W	19°30'N, 154°45'W	19°44'N, 155°04'W	
Route PN25B				
PN250 Panama S	PN253 Mala			
	7°30'N, 79°30'W			
	PN254			
	2°00'S, 85°00'W			
	PN255	PN257 Hawaii SE	Hilo	5144
	0°00', 110°00'W			
Route PN25C				
PN250 Panama S	PN251 Fralles			
	PN256 Coiba	PN257 Hawaii SE	Hilo	4530
	7°10'N, 82°00'W			

The painful dilemma faced by all those who plan to sail from Panama to Hawaii is whether to follow the traditional sailing route and make a detour of some 1000 miles or take the great circle route and hope for the best. The great circle route skirts an area of calms and light winds between longitudes 80°W and 110°W, which can be avoided by following the directions given to the masters of sailing ships who were advised to always try and make their westing with the help of the SE trade winds (route PN25A). This means sailing south of latitude 5°N until meridian 110°W is crossed and then take the great circle route from WP PN252 to Hawaii. This southerly route is strongly recommended during the hurricane season (June to October), when the great circle route from Panama passes through an area of tropical storms west of Mexico. Boats sailing this longer route and

leaving Panama at WP PN250 should stay west of Las Perlas Islands and continue south to WP PN251. From there a course is set for WP PN252 by sailing north of the Galapagos Islands to take advantage of both favourable wind and current. From WP PN252 the great circle course can be joined to Hawaii.

From February to May after leaving the Gulf of Panama the recommended route (PN25B) heads south and passes south of the Galapagos Islands. Westing is made close to the equator, to take full advantage of the prevailing SE winds and favourable current. From WP PN255, the great circle course is joined for Hawaii.

For the rest of the year, between November and February, the direct route from Panama (PN25C) is to be preferred as it takes less time to reach the NE

trade wind belt, which extends further south in winter. If the passage is undertaken in November, favourable winds and current can be expected for almost the entire distance. Having left the Gulf of Panama, from WP PN256, a great circle course can be set for WP PN257, off Cape Kumuhaki, at the eastern extremity of Hawaii Island. A convenient

port of entry, for boats arriving from the east, is Hilo.

For those who prefer to break up this passage into shorter stages, it is possible to sail first to Costa Rica, either in one offshore leg, or in short hops along the coast. From there similar directions apply for the rest of the voyage to Hawaii as for route PN26.

PN26 Central America and Mexico to Hawaii

BEST TIME:	March to May, November			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051 US: 51			
PILOTS:	BA: 8, 62 US: 152, 153			
CRUISING GUIDES:	<i>Charlie's Charts of the Hawaiian Islands, Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN261 Golfito 8°36'N, 83°12'W		PN263 Hawaii SE 19°30'N, 154°45'W	Hilo 19°44'N, 155°04'W	4212
PN262 Acapulco 16°50'N, 99°58'W		PN263 Hawaii SE	Hilo	3140

Tropical storms affect this route throughout the summer, although boats leaving from Mexico are at greater risk than those setting off from Costa Rica, where the route can be easily shaped to stay south of the danger area. Mainly because of the threat of these storms, most passages on this route are made either before June or after October. At all times it is essential to move offshore as quickly as possible to escape the influence of the land and find the prevailing NE trades. In April and early May, the weather in the vicinity of the coast is often

unsettled, with thunderstorms and variable winds. The winds offshore are very steady during the early summer, especially west of longitude 120°W. In November and December the trade winds are much stronger and there is often a big swell, the result of gales further north.

A direct course can be normally sailed at the recommended times. Landfall will be made at WP PN263, off Cape Kumuhaki, at the eastern extremity of Hawaii Island. A convenient port of entry is Hilo, on the east coast of that same island.

PN27 Central America and Mexico to Panama

BEST TIME:	November, May			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051 US: 51			
PILOTS:	BA: 8, 62 US: 152, 153			
CRUISING GUIDES:	<i>Cruising Guide Acapulco to Panama Canal.</i>			

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN271 Acapulco 16°50'N, 99°58'W	PN272 15°00'N, 99°30'W			
	PN273 10°00'N, 95°00'W			
	PN274 Colba 7°10'N, 82°00'W			
	PN275 Frailes 7°10'N, 80°00'W	PN276 Panama S 8°50'N, 79°30'W	Balboa 8°57'N, 79°34'W	1533

Because of the lack of protected harbours in Guatemala and the political situation in El Salvador and Nicaragua, until recently most boats preferred to sail nonstop from Mexico to Costa Rica. In spring and autumn, the winds are often light and there are frequent calms. The situation is very different in winter, when gale force winds make the crossing of the gulfs of Tehuantepec and Papagayo a daunting experience. When sailing relatively close to the coast, the strong NW setting current has caused problems for those closing with the coast thinking that they were already in Costa Rican waters but were in fact still in Nicaragua. The topography along the south coast of Nicaragua is very similar to the north of Costa Rica, so it is easy to make such a mistake. It is therefore advisable to keep well offshore and only approach the coast when absolutely sure of the position.

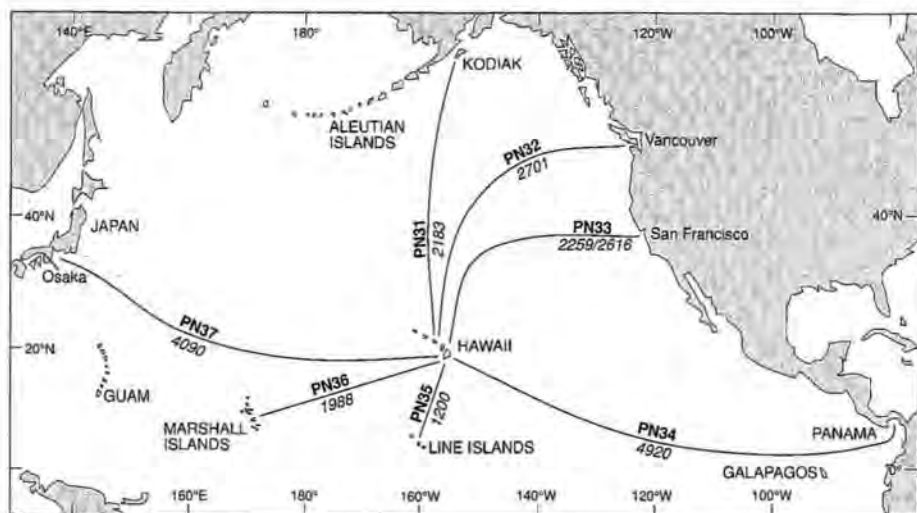
The reception extended to visiting yachts by the various Central American countries depends very much on the political situation at the time, and occasionally also on the nationality of the yacht in question. Stopping at one of the ports on the Pacific coast of Guatemala has little attraction, whereas in El Salvador the situation has improved dramati-

cally with the coming of peace. A good place to stop is Acajutla (13°36'N, 89°50'W), which is one of El Salvador's official ports of entry, the other being Cutuco (13°19'N, 87°49'W). On entering the Gulf of Fonseca, the Salvadorean Coast Guard should be contacted on VHF channel 16. The Honduran port of San Lorenzo (13°25'N, 87°27'W) has been recommended as an emergency stop, while in Nicaragua the ports of Corinto (12°28'N, 87°11'W) and San Juan del Sur (11°15'N, 85°53'W) have attracted mixed comments. One of the most attractive stops on the Costa Rica coast is Golfito (8°36'N, 83°12'W).

The alternative to the inshore route is to sail well off the coast thereby avoiding the effect of the local strong winds described earlier. This makes sense, especially if leaving from northern Mexico, so that the entire passage is made well off the coast and the Gulf of Tehuantepec is passed at some 400-500 miles offshore. The route then curves towards Cocos Island (5°33'N, 87°02'W), where a stop is recommended, before entering the Gulf of Panama at Cabo Mala. Directions for transiting the Panama Canal are given on page 489.

PN30 ROUTES FROM HAWAII

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PN30 Routes from Hawaii

The main attraction of America's outpost in the North Pacific are the NE trade winds which ensure a fast downwind passage from ports on the west coast of America, especially from those in California. Hawaii's main disadvantage is the same trade winds, which make a return voyage to those ports a more difficult undertaking. The logical solution for a return passage with fair winds is to make a big sweep to northward hoping to find in higher latitudes the favourable winds needed for the passage home. The prevailing NE winds also make a return to Hawaii very difficult from any of the Micronesian islands to the west, and forward planning should be the main concern for anyone planning a voyage to or from Hawaii. Most routes in or out of Hawaii are under the direct influence of the North Pacific high, which generates the NW winds that prevail along the Pacific coasts of Canada and the USA as well as the NE trade winds mentioned above. Boats returning to continental America are faced with a difficult obstacle by the same high which must be bypassed to avoid the calms and light winds associated with it. Although the Hawaiian islands are rarely affected by tropical storms, some have occurred there in recent years and this should be borne in mind by those who are there in summer.

The NE trade winds prevail around Hawaii for most of the year. The winds tend to be northerly in

March, becoming more easterly later on. The NE trade winds are stronger near these islands than anywhere else in the Pacific. Lighter winds and calms can be experienced in October, while in November and December southerly winds can interrupt the trades. The worst months are January and February, when S and SW gales called *konas* strike, lasting from a few hours to 2-3 days and bringing rain.

The high volcanic islands do affect winds locally and gentle land and sea breezes flow on and off the land. The trades also divide and flow around the coast to the north and south of Molokai and Maui especially. Because of the height of most islands, there is a considerable wind shadow in their lee and the trade winds are sometimes blocked altogether. On the other hand, in the channels between the islands the wind is accelerated, particularly strong gusts and rough seas being experienced in the Alenuihaha Channel separating Maui from the Big Island. Winds tend to be lighter in the morning before the trades strengthen for the day.

Of all the routes originating in Hawaii, only the route across the equator to Tahiti (PT25) offers a chance of good passages in both directions, although this is not the main reason for the popularity of this route. Ever since the South Pacific was put on the world cruising map in the early 30s, Hawaii has been used as a convenient stepping stone by boats on their way to other Polynesian

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destinations. Modern sailing boats have given back to Hawaii its important position at the apex of the triangle linking the far flung corners of Polynesia, from Aotearoa (New Zealand) in the west to Rapa Nui (Easter Island) in the east. For a foray into the South Seas, the islands of Hawaii offer an excellent starting point. For those who are not afraid of sailing a little farther in search of better winds, Hawaii is in just as convenient a position, whether the destination is in Japan, Alaska, or the Pacific Northwest.

The eastern part of the North Pacific lends itself to a circular route, which can be easily accomplished in as little as six months. By sailing to Hawaii in late winter or early spring, preferably from a port in California, one benefits from the best sailing conditions across. The early summer is then spent exploring the Hawaiian islands before the return voyage is undertaken, ideally not later than July. That would allow sufficient time for a short cruise in British Columbia before sailing back to California in the autumn.

PN31 *Hawaii to Alaska*

BEST TIME:	Mid-June to August			
TROPICAL STORMS:	None			
CHARTS:	BA: 4050 US: 530			
PILOTS:	BA: 4, 62 US: 152			
CRUISING GUIDES:	<i>Charlie's Charts North to Alaska.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN31A				
PN311 Hanalei	PN312			
22°15'N, 159°31'W	40°00'N, 160°00'W			
	PN313	PN314 off Kodiak	Kodiak	2183
	57°23'N, 152°00'W	57°45'N, 152°15'W	57°47'N, 152°25'W	
Route PN31B				
PN311 Hanalei	PN312	PN315 Sedanka	Dutch Harbour	1952
		53°50'N, 165°55'W	53°54'N, 166°32'W	

Summer is undoubtedly the best time to make this passage and most boats which take this north-bound route normally leave Hawaii in the second half of June. Such a departure ensures longer and warmer days in higher latitudes and at least one month of cruising in Alaska before heading south again.

The course from Hawaii is almost due north and skirts the western edge of the North Pacific high. In summer (June to August), the high is normally centred around 38°N, 150°W. NE winds normally persist at least as far as latitude 30°N before being replaced by variable winds. In some years the shift to westerlies can be quite abrupt, in other years steady westerly winds are almost nonexistent and light winds and calms persist all the way to Alaska. Generally, however, favourable winds can be expected for most of the way, as above latitude

40°N an average of 70 per cent of the winds are from between S and W. The weather gets increasingly cold as higher latitudes are reached and north of latitude 40°N there is also a high proportion of fog. This can be a cause of concern because of the large amount of shipping, both cargo and fishing boats. Yet another problem is the overcast sky, which is a feature of higher latitudes in summer. The permanent cloud cover makes it impossible to take sun sights, which makes satellite navigation almost indispensable.

A favourite starting point from Hawaii is Hanalei Bay on Kauai Island. From WP311, outside Hanalei Bay, the course is almost due north along meridian 160°W, so as to keep west of the Pacific high. From WP PN312 the course is altered for WP PN313, east of Kodiak Island. From that point the route runs along the east coast of that island to WP

PN314 in the approaches to Kodiak Harbour. The well protected harbour is best entered from NE through a dredged channel, which leads N of Near Island to Kodiak, an old town on the NW shore of Kodiak Harbour. Boats bound for Dutch Harbour will follow similar directions and, from WP PN312, will set course for WP315 off Sedanka Island. The course can then be altered to sail

through Akutan Pass to reach Dutch Harbour in Unalaska Bay on the north coast of Unalaska Island. Dutch Harbour is a better starting point than Kodiak for a cruise along the northern shore of the Gulf of Alaska. However, if time is short and one wishes to spend some time cruising on the way south, Kodiak is probably a better choice.

PN32 *Hawaii to the Pacific Northwest*

BEST TIME:	May to August			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4806, 4807			
	US: 530			
PILOTS:	BA: 25, 62			
	US: 152, 154			
CRUISING GUIDES:	<i>Cruising Guide to British Columbia, Charlie's Charts of the US Pacific Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN321 Hanalei 22°15'N, 159°31'W	PN322 40°00'N, 160°00'W	PN323 Flattery 48°25'N, 124°50'W	Victoria 48°25'N, 123°24'W Seattle 47°37'N, 122°21'W	2701 2755

The summer months are to be preferred for this passage, not so much because they ensure better winds, but because the weather is warmer. Indeed, faster passages have been made in February, when a higher proportion of southerly winds have made it possible to sail almost a great circle course to Juan de Fuca. At all other times the recommendation is to sail due north on leaving Hawaii and only start turning east when steady westerly winds are met. This normally happens above latitude 40°N and the point where the route takes on that easterly curve is furthest north in August and furthest south in December. In summer it might be necessary to go as far north as 45°N before being able to turn east. With the approach of autumn, the North Pacific high starts moving south, which means that the swing to the north need not be so great. However, such an advantage has to be weighed against the increase in gale force winds.

This route depends very much on the position of the North Pacific high, which in summer is centred on 38°N, 150°W. The recommended route follows its western edge and then curves around its northern fringe trying to avoid the calms that are met if the area of high pressure is crossed. Undeterred by this prospect, some people who are prepared to use

their engines try to steer the shortest course across and are occasionally rewarded by a faster, if windless, passage. In recent years, the most common strategy has been to sail north to the limit of the NE trade winds and then use the engine to reach the area of prevailing westerlies. For those who prefer to sail all or most of the way, there is less choice, and their reward for a longer and colder passage into higher latitudes is a fast reach in steady westerlies. As the route skirts the fringes of the high, the skies are often overcast and celestial navigation is usually impossible.

Because of the needed northing, boats usually leave from Hanalei Bay on Kauai and take their departure from Hawaii at WP PN321. Intermediate waypoints cannot be given for the reasons described above, but in summer, one may have to head as far north as WP PN322 before altering course for the mainland coast. Landfall will be made at WP PN323, NW of Cape Flattery in the approaches to Juan de Fuca Strait.

Besides the weather, there are several hazards to watch out for on this route, such as the large fishing nets, which are often left unattended and even unlit. Such nets have been reported anywhere between 35°N and 45°N and as far west as 145°W.

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Another hazard, especially north of 40°N is dense fog. Extreme caution is necessary in the approaches to Juan de Fuca Strait because of heavy shipping and strong currents. Shipping separation zones are in operation, with the southern lane being used by arriving ships and the northern lane reserved for outgoing traffic. The lanes diverge at designated points so as to allow ships to turn either north towards Vancouver or south towards Seattle. To complicate matters, there is often a large number of fishing boats around the Swiftsure Bank, east of

the entrance to the strait. Traffic in the area is controlled by Tofino Radio (VHF channels 16 and 74). Incoming vessels are requested to report when due south of Amphitrite Point. The station operates a regular roll call, every ship reporting their position, speed, and course. In bad visibility the station will advise ships that are in the vicinity of a small boat's position. The station will also assist yachts with directions and may even track such vessels on radar.

PN33 *Hawaii to California*

BEST TIME:	March to May, September to October
TROPICAL STORMS:	June to October
CHARTS:	BA: 4807 US: 530
PILOTS:	BA: 8, 62 US: 152
CRUISING GUIDES:	<i>Charlie's Charts of the US Pacific Coast.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
PN331 Hanalei 22°15'N, 159°31'W	PN332 February 30°00'N, 150°00'W	PN335 Reyes 37°55'N, 123°00'W	San Francisco 37°50'N, 122°15'W	2147
PN331 Hanalei	PN333 May 35°00'N, 150°00'W	PN335 Reyes	San Francisco	2259
PN331 Hanalei	PN334 August 40°00'N, 155°00'W	PN335 Reyes	San Francisco	2616

Directions for this route are almost the same as for PN32 as sailing a direct course from Hawaii to California is seldom possible due to the prevailing NE winds. The recommended sailing route from Hawaii runs almost due north before turning east once the area of steady westerly winds has been reached. The turning point varies in latitude throughout the year, being as far north as 40°N in summer and 32°N in winter. The recommended summer route turns quite sharply at the point where steady westerlies are met, whereas at other times the route follows a curve that turns gradually NE and then E towards the port of destination. If the passage is made at the end of winter, in February or March, the route should start turning NE at about latitude 30°N (WP PN332) when the best course should be set for the port of destination. The NE turning point in May is somewhere around WP PN333, and in August WP PN334. From these hypothetical waypoints the route

curves gradually northeast and then east for one's destination. The August turning point is the most northerly in latitude 40°N, or even higher. Because the recommended summer routes make destinations in the Pacific Northwest closer than those in California, boats from South California often take advantage of this by cruising some of that area before heading for home.

Boats sailing nonstop to San Francisco should make landfall at WP PN335 off Point Reyes, at the entrance into the traffic separation zone. In poor visibility one should contact the US Coastguard Vessel Traffic Service (CVTS) on VHF Channel 16 to obtain information on shipping traffic.

As described in PN32, all these routes are greatly influenced by the position of the North Pacific high, as they attempt to follow the contour of this area of high pressure. Boats with a good windward performance can often take a more direct route than the recommended one, as can those whose skippers

are prepared to make their easting with help from the engine. Some fast passages have been made in May by boats taking the great circle route and motorsailing to windward in light winds. At other times, boats heading for Southern California have tried to beat their way across by keeping south of the high, something that can be done especially if one is able to keep track of the weather. Otherwise it is better to follow the old practice of making nor-

thing while under the influence of the NE trade winds and sail east with the westerlies of high latitudes. In between the two systems one may not have much choice except to use the engine. However, as the position of the North Pacific high has such a bearing on all routes to the mainland, it is essential to obtain a long term forecast before leaving Hawaii so as to be able to plot the best course in relation to the existing weather conditions.

PN34 Hawaii to Central America and Mexico

BEST TIME:	November			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051			
	US: 51			
PILOTS:	BA: 8, 62			
	US: 152, 153			
CRUISING GUIDES:	<i>Charlie's Charts of Costa Rica, Charlie's Charts of the Western Coast of Mexico, Cruising Guide Acapulco to the Panama Canal.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN341 Hilo 19°45'N, 155°00'W	PN342 5°00'N, 140°00'W	PN343 Mala S 7°00'N, 80°40'W	Balboa 8°57'N, 79°34'W	4920
PN341 Hilo	PN344 Cocos 5°34'N, 87°05'W	PN345 Dulce 8°36'N, 83°14'W	Golfito 8°38'N, 83°11'W	4338

Because of the prevailing northeasterly winds, which blow throughout the year on the direct route to continental America, directions for passages to ports in Northern Mexico are similar to those described in PN33. Reaching Mexico from Hawaii by such a roundabout route is so time consuming that one should think seriously before committing oneself to such a passage. The alternative is only marginally more attractive, as it entails a similar detour to the south. Ports in Central America, and especially Panama, can be reached by such a southern route, which is best sailed in late October or November. Recommended waypoints are only listed for such a southern route.

A good starting point from Hawaii is Hilo. From WP PN341, outside Hilo, existing weather conditions should be used to best advantage to reach WP PN342. An area of prevailing SE and S winds extends eastwards from this point and also the east-setting Equatorial Countercurrent. The route pass-

es north of the Galapagos Islands with the winds becoming increasingly S and SW so that the route can gradually curve to NE and the Gulf of Panama, where landfall will be made at WP PN343 off Cabo Mala.

Boats bound for Costa Rica may be able to alter course earlier for WP344 north of Cocos Island. The island belongs to Costa Rica and has a good anchorage in Chatham Bay (5°33'N, 87°02'W). The voyage can then be continued to mainland Costa Rica to WP345, at the entrance to Golfo Dulce and the port of Golfito.

Even in a month when the best conditions can be expected along these routes, such as November, this will be a tough passage and should only be undertaken *in extremis* after all other alternatives have been considered. It is also essential that the voyage is made in a boat that goes well to windward as much of the passage will be hard on the wind.

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Another hazard, especially north of 40°N is dense fog. Extreme caution is necessary in the approaches to Juan de Fuca Strait because of heavy shipping and strong currents. Shipping separation zones are in operation, with the southern lane being used by arriving ships and the northern lane reserved for outgoing traffic. The lanes diverge at designated points so as to allow ships to turn either north towards Vancouver or south towards Seattle. To complicate matters, there is often a large number of fishing boats around the Swiftsure Bank, east of

the entrance to the strait. Traffic in the area is controlled by Tofino Radio (VHF channels 16 and 74). Incoming vessels are requested to report when due south of Amphitrite Point. The station operates a regular roll call, every ship reporting their position, speed, and course. In bad visibility the station will advise ships that are in the vicinity of a small boat's position. The station will also assist yachts with directions and may even track such vessels on radar.

PN33 Hawaii to California

BEST TIME:	March to May, September to October
TROPICAL STORMS:	June to October
CHARTS:	BA: 4807 US: 530
PILOTS:	BA: B, 62 US: 152
CRUISING GUIDES:	<i>Charlie's Charts of the US Pacific Coast.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
PN331 Hanalei 22°15'N, 159°31'W	PN332 February 30°00'N, 150°00'W	PN335 Reyes 37°55'N, 123°00'W	San Francisco 37°50'N, 122°15'W	2147
PN331 Hanalei	PN333 May 35°00'N, 150°00'W	PN335 Reyes	San Francisco	2259
PN331 Hanalei	PN334 August 40°00'N, 155°00'W	PN335 Reyes	San Francisco	2616

Directions for this route are almost the same as for PN32 as sailing a direct course from Hawaii to California is seldom possible due to the prevailing NE winds. The recommended sailing route from Hawaii runs almost due north before turning east once the area of steady westerly winds has been reached. The turning point varies in latitude throughout the year, being as far north as 40°N in summer and 32°N in winter. The recommended summer route turns quite sharply at the point where steady westerlies are met, whereas at other times the route follows a curve that turns gradually NE and then E towards the port of destination. If the passage is made at the end of winter, in February or March, the route should start turning NE at about latitude 30°N (WP PN332) when the best course should be set for the port of destination. The NE turning point in May is somewhere around WP PN333, and in August WP PN334. From these hypothetical waypoints the route

curves gradually northeast and then east for one's destination. The August turning point is the most northerly in latitude 40°N, or even higher. Because the recommended summer routes make destinations in the Pacific Northwest closer than those in California, boats from South California often take advantage of this by cruising some of that area before heading for home.

Boats sailing nonstop to San Francisco should make landfall at WP PN335 off Point Reyes, at the entrance into the traffic separation zone. In poor visibility one should contact the US Coastguard Vessel Traffic Service (CVTS) on VHF Channel 16 to obtain information on shipping traffic.

As described in PN32, all these routes are greatly influenced by the position of the North Pacific high, as they attempt to follow the contour of this area of high pressure. Boats with a good windward performance can often take a more direct route than the recommended one, as can those whose skippers

are prepared to make their easting with help from the engine. Some fast passages have been made in May by boats taking the great circle route and motorsailing to windward in light winds. At other times, boats heading for Southern California have tried to beat their way across by keeping south of the high, something that can be done especially if one is able to keep track of the weather. Otherwise it is better to follow the old practice of making nor-

thing while under the influence of the NE trade winds and sail east with the westerlies of high latitudes. In between the two systems one may not have much choice except to use the engine. However, as the position of the North Pacific high has such a bearing on all routes to the mainland, it is essential to obtain a long term forecast before leaving Hawaii so as to be able to plot the best course in relation to the existing weather conditions.

PN34 Hawaii to Central America and Mexico

BEST TIME:	November			
TROPICAL STORMS:	June to October			
CHARTS:	BA: 4051			
	US: 51			
PILOTS:	BA: 8, 62			
	US: 152, 153			
CRUISING GUIDES:	<i>Charlie's Charts of Costa Rica, Charlie's Charts of the Western Coast of Mexico, Cruising Guide Acapulco to the Panama Canal.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN341 Hilo 19°45'N, 155°00'W	PN342 5°00'N, 140°00'W	PN343 Mala S 7°00'N, 80°40'W	Balboa 8°57'N, 79°34'W	4920
PN341 Hilo	PN344 Cocos 5°34'N, 87°05'W	PN345 Dulce 8°36'N, 83°14'W	Golfoito 8°38'N, 83°11'W	4338

Because of the prevailing northeasterly winds, which blow throughout the year on the direct route to continental America, directions for passages to ports in Northern Mexico are similar to those described in PN33. Reaching Mexico from Hawaii by such a roundabout route is so time consuming that one should think seriously before committing oneself to such a passage. The alternative is only marginally more attractive, as it entails a similar detour to the south. Ports in Central America, and especially Panama, can be reached by such a southern route, which is best sailed in late October or November. Recommended waypoints are only listed for such a southern route.

A good starting point from Hawaii is Hilo. From WP PN341, outside Hilo, existing weather conditions should be used to best advantage to reach WP PN342. An area of prevailing SE and S winds extends eastwards from this point and also the east-setting Equatorial Countercurrent. The route pass-

es north of the Galapagos Islands with the winds becoming increasingly S and SW so that the route can gradually curve to NE and the Gulf of Panama, where landfall will be made at WP PN343 off Cabo Mala.

Boats bound for Costa Rica may be able to alter course earlier for WP344 north of Cocos Island. The island belongs to Costa Rica and has a good anchorage in Chatham Bay (5°33'N, 87°02'W). The voyage can then be continued to mainland Costa Rica to WP345, at the entrance to Golfo Dulce and the port of Golfoito.

Even in a month when the best conditions can be expected along these routes, such as November, this will be a tough passage and should only be undertaken *in extremis* after all other alternatives have been considered. It is also essential that the voyage is made in a boat that goes well to windward as much of the passage will be hard on the wind.

PN35 Hawaii to Line Islands

BEST TIME:	April to May			
TROPICAL STORMS:	None			
CHARTS:	BA: 782			
	US: 504			
PILOTS:	BA: 62			
	US: 126, 152			
CRUISING GUIDES:	<i>Landfalls of Paradise, Charlie's Charts of Polynesia.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN351 Oahu S 21°16'N, 157°51'W	PN352 10°00'N, 155°00'W	PN353 2°05'N, 157°30'W	Christmas 1°59'N, 157°28'W	1200
PN351 Oahu S	PN352	PN354 4°00'N, 159°25'W	Fanning 3°51'N, 159°22'W	1152

The route running due south to these islands lying close to the equator has the benefit of the NE trade winds throughout the year. These winds are particularly strong and steady in winter, but tend to get lighter as the islands are approached. The NE winds are usually lost somewhere between latitudes 8°N and 2°N. The doldrums rarely exceed 2° in width in these longitudes and the switch to the SE trade winds of the South Pacific can be quite sudden, especially between May and August. South of latitude 8°N the proportion of southerly winds is always higher. The area is under the influence of all three equatorial currents, their direction, rate, and steadiness varying throughout the year. Sometimes in winter a very strong west-setting current makes itself felt between Christmas and Fanning islands, whereas in summer the counter-current can be just as strong in its easterly set. Generally, the west-setting North Equatorial Current will be experienced down to about 10°N. The east-setting North Equatorial Countercurrent has been observed between latitudes 5°N and 8°N. South of 3°N to just below the equator, the current is again setting west. The latter is the South Equatorial Current.

From WP PN351, off Honolulu, course is set for WP PN352. Because winds will be NE as far as 5°N, and from there E and SE winds will prevail, some easting should be made in the early part of the voyage so as to approach the islands from windward. If possible, one should attempt to start off from one of the most eastern ports in Hawaii, in which case leaving from Honolulu is perhaps not such a good idea. If bound for Christmas Island, from WP PN352 the course should be altered for WP PN353, NW of that island. The island's well protected natural harbour is entered through Cook Island Passage (1°58'N, 157°29'W). Boats bound for Fanning, also known as Teraina, should set course for WP PN354, so as to approach that island from the north. However, it must be pointed out that because of the prevailing SE winds, sailing from Fanning to Christmas Island may not be easy, so one may have to choose between one or the other. The Northern Line Islands belong to Kiribati, and there are official entry procedures only at Christmas and Fanning (Teraina) Island. Otherwise, the comings and goings of cruising boats appear to be tolerated without formalities.

PN36 *Hawaii to Marshall Islands*

BEST TIME:	All year
TROPICAL STORMS:	None
CHARTS:	BA: 781, 782 US: 521
PILOTS:	BA: 61, 62 US: 126, 152
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN361 Oahu S 21°16'N, 157°51'W	PN362 Johnston S 16°30'N, 169°00'W	PN363 Majuro N 7°11'N, 171°09'E	Majuro 7°08'N, 171°22'E	1988
			Ebeye 8°46'N, 167°44'E	2197

This is a downwind run all the way pushed along by the NE trades, which become more easterly in the proximity of the islands. Winds are less constant among the islands themselves and in summer the weather can be squally although the direction of the winds remains predominantly easterly. The unsettled summer weather is caused by the ITCZ moving north over the islands.

The North Equatorial Current and Equatorial Countercurrent set strongly through the archipelago producing a complex pattern. The set among the northern islands is mostly west while in the southern islands it is east. Because of the complexity of the currents and also because the islands are all low lying atolls, it is advisable to only sail among them in daylight and avoid night passages.

From WP PN361, off Honolulu, a direct route for Majuro passes close to the south of Johnston Atoll (16°50'N, 169°30'W). As navigation within 3 miles of this atoll is prohibited, course should be set for

WP PN362, to pass well to the south of it. The route then continues north of Majuro Atoll to WP PN363. The large lagoon is entered through Calalin Pass on its western side (7°10'N, 171°10'E). The two mile wide pass is located between Eroj and Calalin Island and has a shallow area in the centre which divides it into two channels. The Port Authority should be contacted on VHF channel 16 as one approaches the atoll. Boats should proceed to Uliga dock where formalities are completed. The only ports of entry in the Marshalls are the capital Majuro and Ebeye, in Kwajalein Atoll. The latter should not be approached until radio contact has been established with Kwajalein Atoll Control as the area is used for missile testing by the US military. Boats arriving from overseas are strongly recommended to make their first entry at Majuro. Cruising in all islands is only allowed with a special permit which can be obtained in Majuro.

PN37 *Hawaii to Japan*

BEST TIME:	April to May, November
TROPICAL STORMS:	May to December
CHARTS:	BA: 4053 US: 53
PILOTS:	BA: 42A, 42B, 62 US: 152, 158, 159

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN371 Oahu S	PN372			
21°16'N, 157°51'W	18°00'N, 160°00'E			
	PN373			
	28°00'N, 150°00'E			
	PN374	PN375 Shikoku	Osaka	4090
	30°00'N, 143°00'E	33°30'N, 135°00'E	34°39'N, 135°24'E	

Favourable winds prevail along most of this route throughout the year, although the time of arrival in Japan must take into account the typhoon season in that part of the world. A passage in winter, when there is little or no danger of typhoons, is not recommended as the weather can be cold and stormy in Japan. A better time is late spring towards the end of the NE monsoon and before the start of the typhoon season. If planning to cruise in Japan, the best time to leave Hawaii is towards the end of March so as to arrive in Japan by late April or early May. Another alternative is to make the passage just before the onset of winter, late October or November being a good time in which both winds and current are favourable.

On leaving Hawaii the route runs due west along the Tropic of Cancer if the passage is made between April and September. Although conditions for a westbound passage appear to be the best in summer, the risk of encountering a typhoon in the Western Pacific makes summer passages far less attractive. Later in the year and during winter, the NE trades are steadier further south which makes it necessary to possibly go as far south as 16°N to be sure of favourable winds. The recommended route for November runs along latitude 18°N, although better winds might be found even further south. The North Equatorial Current sets west along this route throughout the year. The routes

recommended for various times of the year start curving NW after meridian 160°E has been crossed. It is at that point that a decision has to be made whether to pass to the east or west of Ogasawara Gunto, the chain of islands stretching south of Japan. The recommended route for boats bound for ports east of Tokyo stays east of these islands. For ports in the west of Japan, better conditions will be found if the route passes to the west of the islands in Ogasawara Gunto. An interesting and convenient island in the latter group, in which an emergency stop can be made, is Chichishima (27°05'N, 142°11'E). The main settlement Omura is in the well sheltered Futami Ko Bay, which may become untenable in strong SW winds.

Leaving from Honolulu and WP PN371, depending on the time of year, the route will pass either south or north of Johnston Atoll. The route will have to avoid a number of dangers west of that atoll before passing through WP PN372. From there, the route turns NW towards WP PN373. It then carries on to WP PN374 from where it passes between the islands of Hahashima and Chichishima to make landfall at WP PN375, in the approaches to Osaka. Visiting yachts must clear in at one of the official ports of entry. One of the most conveniently located is Osaka, especially for those planning to cruise the Inland Sea.

ROUTES IN THE FAR EAST

Compared to other parts of the world, cruising routes in the Far East do not fall into a logical pattern, because the area is off the beaten track and the weather is unpredictable. The western part of the North Pacific is far from major cruising routes and Far Eastern countries can only be reached by a lengthy detour. However, many more cruising boats might venture to explore its remoteness were it not for the often appalling weather. Virtually the entire area is subject to violent typhoons, which limit the safe sailing season to only a few months per year. As most distances involved are very long, it usually means that one must be prepared to remain there between seasons and spend the typhoon season in or near a safe anchorage, of which fortunately there are many. Although tropical storms have been recorded in every month of the year, May to December is regarded as the typhoon season.

The three main cruising areas are the Philippines, Japan, and Micronesia. The attraction of the Philippines is the generally pleasant climate and the great number of islands, inlets, and bays to explore. Although typhoons strike the archipelago with regularity, there are many good anchorages where shelter can be sought. The Inland Sea of Japan and the great number of small fishing harbours make Japan an attractive cruising destination, although the safe sailing season is very short. The scattered islands of Micronesia are much closer in character to the islands of the South Pacific and are in fact convenient stepping stones between the South Pacific and the Far East.

The main drawback of the Far East remains, however, the difficulty of getting there. In spite of the favourable NE trade winds that blow across the North Pacific ensuring a fast and pleasant sail from the west coast of America, the number of North American yachts that embark on such a transpacific voyage is very small. They are much more likely to be tempted by the lure of the South Seas and sail to the South Pacific instead, although some venture into the North West Pacific at a later stage, most reaching the Far East via Papua New Guinea and Micronesia. Another route sailed by cruising boats to reach the Far East through the Philippines and Hong Kong is the route originating in Singapore. The reports of piracy in the South China Sea in the 1980s had dissuaded many sailors from using that route. The situation has greatly improved as a result of the gradual liberalisation of Vietnam and the region surrounding it may soon become an attractive cruising destination. For the time being, the best solution for boats starting off from Singapore is to follow the north coast of Borneo, where stops can be made in the small states of Sarawak, Brunei, or Sabah. The other alternative is to arrive in the Far East via Papua New Guinea at the end of a cruise in the South Pacific. Yet another possibility is to sail nonstop to Japan from the west coast of North America or Hawaii and either continue the voyage towards Singapore and the Indian Ocean, or sail south through Papua New Guinea to Australia, across to New Zealand and along the southern route to Tahiti.

PN40 PACIFIC ROUTES FROM SINGAPORE

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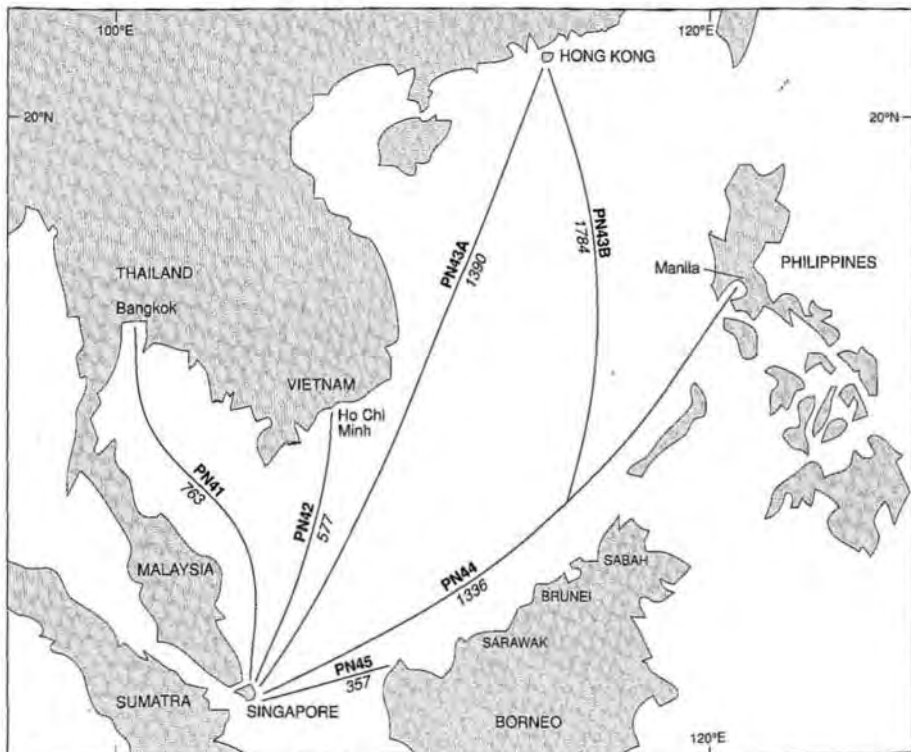
The majority of cruising boats arrive in Singapore either from the south, through Indonesia, or the NW through the Malacca Strait, and most leave by the same routes. Very few venture eastward from Singapore, although there is an increasing traffic of locally owned yachts, some of which commute between the various regional yacht races, such as

the annual King's Cup Regatta in Phuket or the Hong Kong to Manila Race. The gradual opening of Vietnam to foreign tourism will undoubtedly attract more cruising boats to that area. An equally interesting cruising area is the north coast of Borneo. The Philippines are another area waiting to be visited by more cruising boats. The

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compulsory cruising permit for Indonesia discourages short cruises between Singapore and its southern neighbour, but an easing of restrictions is

already underway and a few Indonesian islands close to Singapore can now be visited without a cruising permit.



PN40 Pacific routes from Singapore

PN41 Singapore to the Gulf of Siam

BEST TIME: May to October
TROPICAL STORMS: May to December
CHARTS: BA: 4508 US: 632
PILOTS: BA: 30 US: 160, 161
WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
PN411 Channel N 1°30'N, 104°20'E	PN412 2°45'N, 104°15'E			
	PN413 6°00'N, 104°00'E	PN414 13°00'N, 100°35'E	Bangkok 13°23'N, 100°36'E	763

The best time to sail this route, which runs parallel to the east coast of continental Malaysia, is during the SW monsoon. On leaving the Strait of Singapore through the North Channel, from WP PN411 a course is set for WP PN412. The route passes west of Pulau Pemanggil, one of the smaller Tioman Islands, an attractive archipelago belonging to Malaysia, where a stop should be considered. From WP PN412, the route runs due north parallel to the Malaysian coast to WP PN413, close to the point where the route enters Thai waters.

From there the course can be altered for WP PN414, near Ko Phai light and Bangkok Pilot Station, in the approaches to Bangkok (Krung Thep) at the entrance to the buoyed channel leading across Bangkok Bar. The busy port of Bangkok has spread on both shores of the Chao Phraya river and can hardly be recommended as a cruising destination in itself. Visiting boats should head for Pattaya, where the Royal Varuna Yacht Club is based, and complete entry formalities with the help of the Yacht Club.

PN42 Singapore to Vietnam

BEST TIME:	May to October			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508			
	US: 632			
PILOTS:	BA: 30			
	US: 160, 161			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN421 Channel N 1°30'N, 104°20'E		PN422 Mekong 10°35'N, 106°30'E	Ho Chi Minh 10°47'N, 106°42'E	577

Similar directions apply as for route PN41 as far as the Tioman Islands, if a stop there is intended. The best time to sail to Vietnam is the same as for the Gulf of Siam as sailing anywhere in this area should be timed to take full advantage of the two monsoons: NE monsoon in winter (December to April) and SW monsoon in summer (May to October).

Boats intending to sail direct to Vietnam, on leaving the Strait of Singapore through the North Channel, from WP PN421 course is set for WP PN422, W of Con Son Island, in the approaches to the channel leading through the shallow waters of the Mekong Delta. Ho Chi Minh City, the former Saigon, stands on the west bank of the Song Sai

Gon river. The Vietnamese capital is about 40 miles from the sea and access to it is by one of two dredged channels. Anchorage in the river is prohibited except well away from the city. At the time of writing, Vietnam was still out of bounds for cruising yachts but there were already signs that there would be an easing of restrictions in the not too distant future. It is therefore advisable to check out the situation before leaving Singapore because even if one is not allowed to cruise in Vietnam, it may be possible to obtain permission to stop in one of the ports on the east coast, which could be a great help for boats on passage to or from Hong Kong.

PN43 Singapore to Hong Kong

BEST TIME:	May to June			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508			
	US: 632			
PILOTS:	BA: 30, 31			
	US: 157, 160, 161, 162			

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN43A				
PN430 Channel N 1°30'N, 104°20'E	PN431 Chadwick 10°00'N, 109°43'E			
	PN432 Parcel W 17°05'N, 111°20'E	PN433 Hong Kong SW 22°00'N, 114°04'E	Hong Kong 22°18'N, 114°10'E	1390
Route PN43B				
PN434 Channel M 1°25'N, 104°25'E	PN435 Natuna 3°30'N, 108°25'E			
	PN436 Luconia 4°20'N, 112°30'E			
	PN437 Balabac 7°35'N, 117°00'E			
	PN438 Palawan 10°30'N, 118°00'E	PN439 Hong Kong SE 22°10'N, 114°22'E	Hong Kong	1784

Direct passages through the South China Sea must avoid a large area of reefs and associated dangers north of Borneo. In the past the recommended route passed between the north coast of Borneo and this reef area and re-entered the South China Sea through the Palawan Passage. As described in route PN42, the recent changes in Vietnam have made it possible to sail close to the shores of that country and this has considerably shortened the distance to Hong Kong for those who prefer to sail this shorter route (PN43A). Those who intend to stop in North Borneo or the Philippines will continue to use the traditional route through Palawan Passage (PN43B).

The most favourable winds on either of these routes will be found at the start of the SW monsoon and although more consistent winds can be expected in July and August, the increased likelihood of typhoons in the area around Hong Kong makes passages in late summer too risky. Winter passages are not threatened by typhoons but are very difficult to accomplish as this is the time of the NE monsoon when strong NE winds and an equally strong south flowing current occur north of Borneo. A winter passage is best undertaken in short stages with stops along the north coast of Borneo, as described in routes PN44 and PN45.

Boats sailing route PN43A to Hong Kong should leave the Strait of Singapore through the North Channel. From WP PN430 the route passes

to the west of Mangkai Island to WP PN431, 30 miles east of the Chadwick Islands, off Vietnam's SE coast. The route continues in a northerly direction parallel to the Vietnamese coast to WP PN432, 15 miles west of North Reef, the westernmost reef in the Parcel Islands. From there a course can be set for WP PN433, in the SW approaches to Hong Kong.

Route PN43B leaves the Strait of Singapore through the Middle Channel. From WP PN434 the route runs between South Natuna and Subi Kechil islands to WP PN435. From there, a course is set for WP PN436, south of Luconia Shoals. From WP PN436 a straight course can be steered for WP PN437, 12 miles S of Melville Island at the entrance into Balabac Strait. From there the route to Hong Kong continues through Palawan Passage. The narrowest part of this passage is 28 miles wide, where it is bound on the west by Captain Royal Shoal and on the east by Balabac Island. As the currents set strongly eastward through the Balabac Strait, Balabac Island should not be approached in bad weather. In the area between Borneo and Palawan, the currents often behave erratically and many vessels have come to grief on either side of Palawan passage when going through in poor visibility. From WP PN438, at the northern entrance into Palawan Passage, a direct course, which passes east of Macclesfield Bank, can be set for WP PN439, in the SE approaches to Hong Kong.

Visiting yachts are welcome at the Royal Hong Kong Club, located in Victoria Harbour, on the N side of Hong Kong Island. Arriving yachts should contact Port Operation Service on VHF channel 12

and proceed to the western quarantine anchorage. Because of the heavy amount of shipping, it is essential to time one's arrival for daylight hours.

PN44 Singapore to the Philippines

BEST TIME:	May to July			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508 US: 632			
PILOTS:	BA: 30, 31, 33 US: 160, 161, 163, 166			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN44A				
PN441 Channel M 1°25'N, 104°25'E	PN442 Natuna 3°30'N, 108°25'E			
	PN443 Luconia 4°20'N, 112°30'E	PN445 Balabac 7°35'N, 117°00'E		855
PN441 Channel M	PN442 Natuna PN443 Luconia PN446 Saracen 6°10'N, 115°00'E	PN448 Luzon 14°25'N, 120°15'E	Manila 14°35'N, 120°58'E	1336
Route PN44B				
PN441 Channel M	PN444 Api 1°35'N, 108°35'E	PN445 Balabac		872
	PN446 Saracen PN447 Palawan	PN448 Luzon	Manila	1353

Few boats attempt to make this passage without stopping as there are a number of convenient ports on the north coast of Borneo. A passage during the SW monsoon offers the best chance of favourable winds, but such a summer passage also carries the risk of typhoons as one approaches the Philippines. Typhoons, however, are less frequent in the southern half of that archipelago so one should plan on restricting one's cruising to that area during the critical period. There would be less risks from typhoons if the passage is made during the NE monsoon, but then the winds will be mostly contrary. As the route runs along the coast of Borneo, the voyage can be interrupted in any one of the three states bordering on the South China Sea and there are several ports in Sarawak, Brunei and Sabah where yachts can find good shelter.

There are two variants which can be sailed on this route. Having left the Strait of Singapore through the Middle Channel, from WP PN441, the more northern route (PN44A) runs between South Natuna and Subi Kechil islands to WP PN442. From there, a course is set for WP PN443, south of Luconia Shoals.

The alternative route (PN44B), also leaving the Strait of Singapore at WP PN441, goes first to WP PN444 by passing south of a group of small islands, the closest of which is Pulau Kajuara. From WP PN444, the course turns NE and goes through Api Passage, NW of Borneo, to join the other route at WP PN443, south of Luconia Shoals. In all these passes attention must be paid to the currents, which can be very strong at times. Another hazard along the north coast of Borneo are the various oil plat-

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forms, most of which are lit.

From WP PN443 boats bound for the Southern Philippines can set a straight course for WP PN445, 12 miles S of Melville Island at the entrance into Balabac Strait. From Balabac Strait the route enters the Sulu Sea, where conditions can be quite rough during the NE monsoon. This is one of the reasons why the inside route through the Sulu Sea is not necessarily the best if bound for Luzon and Manila. Ports in the Northern Philippines are better reached through the Palawan Passage, as described below.

Boats bound for ports in the Northern Philippines and intending to use the Palawan Passage, should

alter course at WP PN443, off Luconia Shoals, for WP PN446, west of Saracen Bank. From there a direct course can be set which leads through the Palawan Passage to WP PN447. From there, the same course is maintained to WP PN448, off Luzon Point in the approaches to Manila.

The alternative to the above routes is to break up the passage into shorter stages by calling at ports in the Natuna Islands, Sarawak and Brunei. A convenient stop on the NE corner of Borneo is Kota Kinabalu, the capital of Sabah, one of the states belonging to the Federation of Malaysia. Details of these stops are described in route PN45.

PN45 Singapore to North Borneo

BEST TIME:	May to July			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508 US: 632			
PILOTS:	BA: 31 US: 160, 161, 163			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN451 Channel M 1°25'N, 104°25'E	PN454 Api 1°35'N, 108°35'E		Kuching 1°34'N, 110°21'E Muara 5°02'N, 115°04'E Kota Kinabalu 5°59'N, 116°03'E	357 692 772

Most boats bound for the Philippines and beyond take advantage of the conveniently placed ports on the north coast of Borneo to break the voyage in one of the states belonging to the Federation of Malaysia. From the Strait of Singapore and WP PN451, the route leads to WP PN452, close to the Api Passage, passing south of a group of small islands, the closest of which is Pulau Kajuara. A first stop can be made in Natuna Besar, a group of islands belonging to Indonesia. The main port is Genteng, on Sedanau Island (3°45'N, 108°00'E). As there is a dispute over the islands between Indonesia and Malaysia, only emergency stops are allowed. From Api Passage the route follows closely the coast of Sarawak, one of the states in the Malaysian Federation. Its capital Kuching is 22 miles up the river Sarawak. There are sand bars across the river entrance, but they only cause prob-

lems to deep drafted boats.

The next country on Borneo's north coast is Brunei. The main port of this oil rich state is Muara, at the mouth of the river on which is also the capital of Brunei, Bandar Seri Bagawan. Further east, on the NE corner of Borneo, is the state of Sabah, whose capital is Kota Kinabalu.

The area is rarely affected by typhoons and the effect of the monsoons is also less noticeable than further north. Especially during the early part of the SW monsoon, winds are often light, there are frequent calms and, if sailing close to the coast, land and sea breezes are more reliable than seasonal winds. A good reserve of fuel should be carried as much of the distance may have to be covered under power. The SW monsoon becomes stronger towards the end of summer.

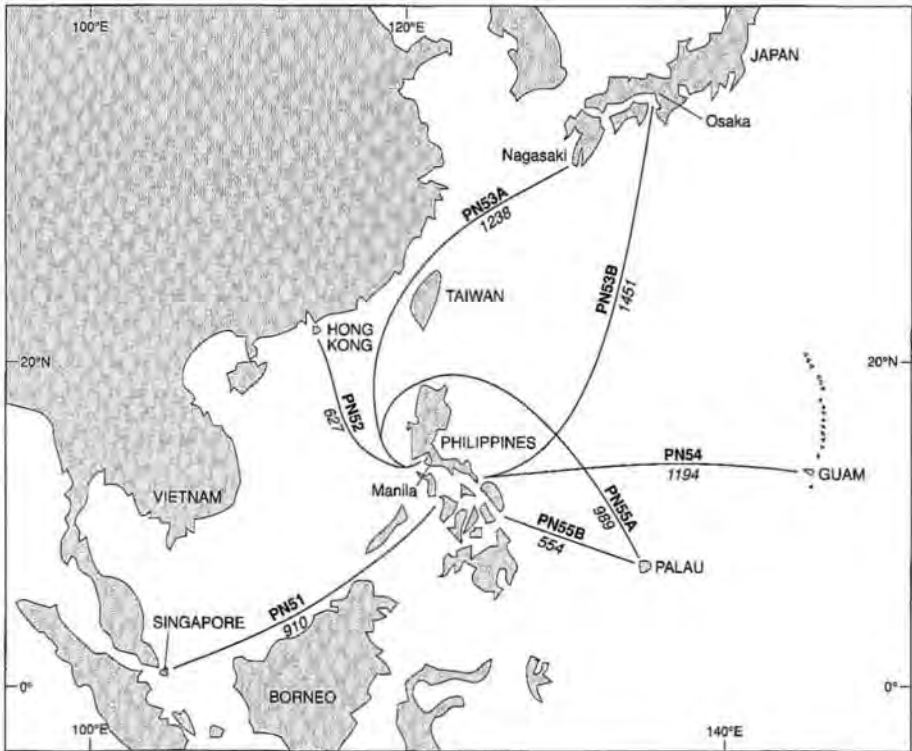
PN50 ROUTES FROM THE PHILIPPINES

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PN53 <i>Philippines to Japan</i>	233
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Rumours of piracy in the notorious Sulu Sea, difficulties with the officials, and the threat of typhoons have all combined to keep most cruising boats away from this beautiful and interesting country. As in other parts of the world, some of these points may have been exaggerated and reports from cruising boats which have visited the Philippines recently paint a brighter picture.

Over 7,000 islands make up this large archipel-

ago and with so many islands over such a large area it is obvious that local weather conditions will vary considerably. The prevailing winds blowing over the islands are influenced mainly by the monsoons of the China Sea, the Philippines forming a border between this sea and the Pacific Ocean. The NE monsoon blows from mid-October until mid-May and this is regarded as the fine season, with dry and clear weather.



PN50 Routes from the Philippines

ROUTES IN THE NORTH PACIFIC

The SW monsoon only becomes well established from July and lasts until October. During the latter part of this period the weather becomes squally with violent gales, which can last for several days. These gales usually begin from the N or NW and back to SW or S, blowing strongly with heavy rain. September to November are the worst months for this kind of weather. This is also the

period during which typhoons strike these waters. These storms usually originate to the SE of the islands and move across them into the China Sea, some reaching the China coast, while others curve up towards Japan. The Philippines have one of the highest incidence of typhoons and although the main season is from June to October they can occur at any time between May and December.

PN51 Philippines to Singapore

BEST TIME:	January to March			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508			
	US: 524			
PILOTS:	BA: 30, 31, 33, 44			
	US: 157, 160, 161			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN51A				
PN511 Melville	PN512 Luconia			
7°35'N, 117°00'E	4°20'N, 112°30'E			
	PN513	PN514 Channel M	Singapore	893
	3°30'N, 108°25'E	1°25'N, 104°25'E	1°16'N, 103°50'E	
Route PN51B				
PN511 Melville	PN512 Luconia			
	PN515 Api	PN514 Channel M	Singapore	910
	1°35'N, 108°35'E			

Because of the low incidence of tropical storms in the areas traversed by this route, southbound passages can be made at any time of the year, although more favourable sailing conditions occur during the months in which the NE monsoon is well established. During summer and the SW monsoon, typhoons occasionally pass through the Philippines and therefore offshore passages are best avoided, particularly during the peak months of August and September. As these are also the months when the SW monsoon is blowing at its strongest, passages should indeed be left for another time.

After leaving the Sulu Sea through Balabac Strait, from WP PN511, 12 miles south of Melville Island, the route runs parallel to the north coast of Borneo to WP PN512, south of Luconia Shoals. From there, Singapore can be reached either through Api Passage, close to the NW extremity of Borneo, or by an offshore route that goes through the pass separating Subi Kechil Island and the Natuna Islands. To take the offshore route (PN51A), from WP

PN512 a course is set for WP PN513 before altering course for WP PN514 to negotiate the Strait of Singapore through the Middle Channel.

The more southern route (PN51B) splits from WP PN512 in a SW direction and passes through Api Passage to WP PN515. From there a course is set for WP PN514 and the Strait of Singapore passing south of a group of small islands, the closest of which is Pulau Kajuara. Boats arriving in Singapore from the east may find it easier to go to the anchorage off the Changi Yacht Club, NE of Singapore Island, and complete entry formalities from there. The alternative is the new Raffles Marina (1°20.53'N, 103°38.22'E), on the west coast of Singapore Island.

Few boats sail this route without stopping in one of the three small states in North Borneo, all of which have excellent harbours, Kota Kinabalu (5°59'N, 116°03'E) in Sabah, Muara in Brunei (5°02'N, 115°04'E), and Kuching in Sarawak (1°34'N, 110°21'E). A stop in any of these ports is particularly

welcome during the SW monsoon when contrary winds and currents make this passage slow and

tedious. All those ports are described in more detail in route PN45 (page 230).

PN52 *Philippines to Hong Kong*

BEST TIME:	Mid-December to mid-March			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508 US: 524			
PILOTS:	BA: 30, 31, 33 US: 157, 162			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Manila 14°35'N, 120°58'E	PN521 Luzon 14°25'N, 120°22'E	PN523 Hong Kong SE 22°00'N, 114°22'E	Hong Kong 22°18'N, 114°10'E	627
San Fernando 16°37'N, 120°19'E	PN522 Lingayen 16°40'N, 120°15'E	PN523 Hong Kong SE	Hong Kong	488

This passage is usually made either direct from Manila Bay or from one of the ports further north along the west coast of Luzon. Whichever point of departure is chosen, the passage presents no problems during the NE monsoon, when favourable conditions can be expected for the entire passage, although the winds can be quite strong. The best time to do this passage is from mid-December to mid-March. During the remainder of the year, particular attention must be paid to tropical depressions forming in the South China Sea or even further afield, as these can develop into fully fledged typhoons before a safe harbour can be reached.

Pratas Reef should be given a wide berth, and unless the weather is clear and settled it should not be passed too close on its windward side. During the NE monsoon, when strong winds and overcast skies can last for several days, vessels approaching

Pratas Reef from the S or SE should check their position frequently, as many vessels have been lost on this reef due to a doubtful position.

The busy port of Manila attracts fewer cruising boats than in the past. Boats leaving from there take their leave at WP PN521, off Luzon Point. A direct course can be set from there for Hong Kong and WP PN523. A more popular port, and a better point of departure from the Philippines, is San Fernando, north of Manila. To leave from there, a direct course for Hong Kong can be set from WP PN522 for WP PN523, in the approaches to Hong Kong. Visiting yachts are welcome at the Royal Hong Kong Yacht Club, located in Victoria Harbour, on the N side of Hong Kong Island. Arriving yachts should contact Port Operation Service on VHF channel 12 and proceed to the western quarantine anchorage. Because of the heavy amount of shipping, it is essential to time one's arrival for daylight hours.

PN53 *Philippines to Japan*

BEST TIME:	May
TROPICAL STORMS:	May to December
CHARTS:	BA: 4509 US: 522
PILOTS:	BA: 33, 42A, 42B US: 158, 159, 162

ROUTES IN THE NORTH PACIFIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN53A				
San Fernando 16°37'N, 120°19'E	PN531 Lingayen 16°40'N, 120°15'E			
	PN532 Taiwan N 23°00'N, 118°30'E			
	PN533 East China 27°30'N, 123°00'E	PN534 Kyushu 32°45'N, 129°45'E	Nagasaki 32°43'N, 129°50'E	1238
Route PN53B				
PN535 Bernardino 12°40'N, 124°20'E		PN536 Murato 33°10'N, 134°50'E	Osaka 34°39'N, 135°24'E	1451
Route PN53C				
PN535 Bernardino		PN537 Okinawa 26°08'N, 127°37'E	Naha 26°13'N, 127°40'E	835

The best time to make this passage is in May, at the beginning of the SW monsoon, when the danger of being overtaken by an early typhoon is minimal. The winds are generally favourable for most of the passage, although calms can be expected when approaching the Japanese coast. The offshore route follows the Kuro Shio current, which sets NE at a considerable rate especially during the SW monsoon. Occasionally the weather can be quite rough as one passes from one wind system to the next and attention should be paid to the movement of frontal systems. An equally alert watch must be kept for the large amount of shipping in this area, both commercial and fishing.

Depending on the port of destination, the route can stay either east or west of Nansei Shoto (Ryukyu), the chain of islands which stretch between Japan and Taiwan. The western route (PN53A) enters the East China Sea through Taiwan Strait and then heads for the SW coast of Kyushu, where a convenient port of entry into Japan is Nagasaki. From San Fernando and WP PN531, the initial route goes almost due north towards Taiwan Strait and WP PN532. The route crosses the shallow Taiwan Bank, where rough seas may be encountered in strong winds and which also has a

high concentration of fishing boats. Having passed through Taiwan Strait, the route runs parallel to the mainland coast across the East China Sea and makes landfall at WP PN534.

At the change of seasons, or perhaps right at the beginning of the SW monsoon, a direct offshore passage (PN53B) can be feasible. In such a case, the most convenient place to leave the Philippines is through the Bernardino Strait. From WP PN535 the offshore route leads to WP PN536 off Murato Saki in the approaches to Osaka. The latter is a convenient port of entry and also a good starting point for those wishing to enter the Inland Sea (Seto Naikai) from the east.

If one cannot avoid sailing to Japan during the NE monsoon of winter, very strong NW winds can be expected for the best part of the passage. The main advantage of a passage during that season is the absence of typhoons. Early in the year, in February or March, an alternative to beating into the wind by sailing the offshore route nonstop, is to head for Okinawa and start cruising among the Japanese islands from there. Starting from the SW extremity of the Japanese archipelago, it is then easier to move NE along the chain of islands. The port of entry on Okinawa is Naha.

PN54 *Philippines to Guam*

BEST TIME:	July to September			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 781 US: 524			
PILOTS:	BA: 33, 60 US: 126, 162			
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN54A				
PN541 Bernardino	PN542	PN543 Guam	Apra	1194
12°40'N, 124°20'E	13°00'N, 140°00'E	13°27'N, 144°34'E	13°27'N, 144°37'E	
Route PN54B				
PN544 Babuyan		PN543 Guam	Apra	1322
18°45'N, 122°20'E				

The steadiness of the NE trade winds and the west-setting current during winter, when the risk of typhoons is lowest, precludes the possibility of making this passage during the safe season. The only time when a reasonable proportion of fair winds can be expected is during the SW monsoon (PN54A). At this time the proportion of easterly winds is indeed much lower, but the risk of typhoons is very high. Leaving from San Bernardino Strait at WP PN541 the route goes almost due east to WP PN542. From there course is altered to make landfall at WP PN543, off Guam, where formalities are completed in Apra Harbour.

Harbour Control should be contacted on arrival on VHF channels 12, 13, or 16. Cruising boats are normally directed to the commercial pier for clearance.

If this passage is considered during the NE monsoon (PN54B), a better slant should be achieved by sailing around the north of Luzon passing through the Babuyan Islands. From WP PN544 a direct course can be set for Guam and WP PN543.

Because of the difficulty of making easting at almost any time along this route, and also the risk of typhoons during most months, an alternative is to make a detour via Palau (7°20'N, 134°27'E) and Yap (9°30'N, 138°08'E) as described in route PN55.

PN55 *Philippines to Palau*

BEST TIME:	January to March			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 781 US: 524			
PILOTS:	BA: 33, 60 US: 126, 162			
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN55A				
PN551 Babuyan		PN552 Palau W	Malakal	989
18°45'N, 122°20'E		7°32'N, 134°28'E	7°20'N, 134°27'E	

Most boats normally sail this route as part of a longer trip to the South Pacific. The best time for making this passage is during the winter months when there is little danger of being caught out by a typhoon. The first part of the passage is under the influence of the NE monsoon, which from December to March can blow quite strongly, although the NE winds gradually become lighter in the vicinity of Palau. The North Equatorial Current has a strong westerly set in this region and this should be taken into account.

Because of the high proportion of NE and E winds in the latitude of San Bernardino Strait, an attempt should be made to leave the Philippines as far north as possible to benefit from a better angle across the prevailing winds. During the NE monsoon, a better sailing angle can be achieved by sailing around the north of Luzon (PN55A) to WP PN551 and setting course from there for WP PN552, off Palau. Boats arriving from the west use Toagel Mlungui Pass (7°32'N, 134°29'E) to reach Komebail

lagoon, on the west side of Babeltuap Island, before entering Malakal Harbour. This is the official port of entry into Palau. Yachts must not stop anywhere before Malakal and the Port Authority must be informed in advance of a yacht's ETA. Yachts arriving without a permit, which must be obtained in advance, may only be allowed to stay for a maximum three days.

If the passage is made outside the NE monsoon, the argument in favour of a better sailing angle is less important and the Philippines may be left from further south. During the transition period, or at the very start of the SW monsoon, it is then possible to leave the Philippines through the Surigao Strait (PN55B), east of Leyte Island, and set a direct course for Palau from WP PN553. This is a shorter route than the one described previously, but as it cannot be sailed during the relatively safe winter months, the risk of being caught by a tropical storm must be weighed up against it.

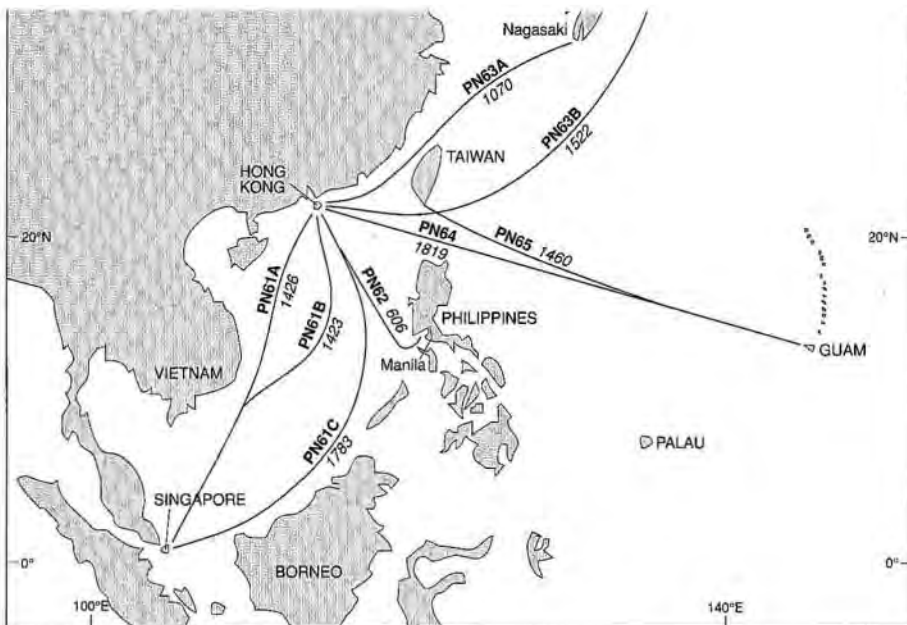
PN60 ROUTES FROM HONG KONG

PN61 <i>Hong Kong to Singapore</i>	237
PN62 <i>Hong Kong to Philippines</i>	239
PN63 <i>Hong Kong to Japan</i>	239
PN64 <i>Hong Kong to Guam</i>	241
PN65 <i>Taiwan to Guam</i>	241

In spite of a large and active local sailing community, Hong Kong is visited by few cruising boats. This is probably explained by Hong Kong's remoteness from the most popular cruising routes, but also because of the relative shortness of the safe sailing season. Although sailing in the immediate vicinity of Hong Kong is safe throughout the year because of the proximity of several typhoon shelters, there are hardly any cruising areas in the vicinity to tempt foreign sailors. The situation may change after Hong Kong reverts to China in 1997 by which time it is hoped that more of China will be accessible to visiting boats. For the time being cruising in mainland China is severely limited and foreign yachts may

only stop at a number of designated ports.

On the edge of the tropics, Hong Kong has a seasonal climate with well marked seasons. The winter from November to April is the time of the NE monsoon, with cooler temperatures and a lower humidity. The summer, from May to October, is hot and steamy with plenty of rain. This is the time of the SW monsoon. During this period bad depressions from the SE and SSE affect Hong Kong and these can build up into typhoons. These storms usually start in the Pacific east of the Philippines and then move NW. Typhoons are most frequent between May and October, but they can occur at the beginning of the NE season as well.



PN60 Routes from Hong Kong

PN61 Hong Kong to Singapore

BEST TIME:	January to March			
TROPICAL STORMS:	May to December			
CHARTS:	BA: 4508			
	US: 632			
PILOTS:	BA: 30, 31			
	US: 157, 160, 161, 162, 163			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PN61A				
PN610 Hong Kong SW	PN612 Paracel W			
22°00'N, 114°05'E	15°00'N, 110°00'E			
	PN613 Chadwick	PN619 Channel M	Singapore	1426
	10°30'N, 110°00'E	1°25'N, 104°25'E	1°16'N, 103°50'E	

ROUTES IN THE SOUTH PACIFIC

as the winds become more easterly south of 20°S. Favourable winds will be found along most of the way and even the doldrums should not be too wide at the recommended time of year.

Boats leaving from Puerto Ayora, on Santa Cruz Island, from WP PS121, east of Punta Estrada, should sail a course due south which passes east of Floreana Island. On this course, depending on existing weather conditions, the equator will be crossed at WP PS122. As mentioned earlier, an area to be avoided if passing south of the Galapagos is between longitudes 90°W and 95°W and latitudes 3°S and 8°S where several yachts have reported unpleasant weather conditions. The area appears to be an extension of the doldrums with little or no wind, thundery squalls, and a heavy swell which makes conditions very uncomfortable. To avoid

this area, if SW winds are encountered on leaving the Galapagos, it would be better to stay on the starboard tack and keep east of meridian 90°W, even if it means temporarily diverting from the direct route. Depending on weather conditions, a course can then be set to make landfall at Easter Island at WP PS123 north of the island's North Cape. The NW coast should be followed to the main settlement of Hanga Roa. The small port at nearby Hanga Piko, south of Hanga Roa, has been improved recently allowing a few keeled boats to find shelter. The Port Captain should be contacted on VHF channel 16 on arrival and he will meet the boat outside the port. Because of the rapidly changing weather, boats at anchor should never be left unattended at Easter Island.

PS13 Galapagos to Gambier Islands

BEST TIME:	April to October			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4061, 4062 US: 62, 621			
PILOTS:	BA: 7, 62 US: 122, 125, 126			
CRUISING GUIDES:	<i>Landfalls of Paradise, Charlie's Charts of Polynesia.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS131 Cruz S 0°46.5'S, 90°18'W	PS132 2°00'S, 92°00'W	PS133 3°00'S, 94°00'W	PS134 Mangareva SE Rikitea 23°20'S, 134°50'W	2927 23°07'S, 134°58'W

This route eschews the well sailed route to the Marquesas and allows one to reach French Polynesia from the SE rather than the NE. Instructions are similar to those for the route from Galapagos to Easter Island, with the added advantage that as the Gambier Islands lie so much further to the west, the SE trades provide an even better slant for this route which crosses one of the most deserted areas of the world. A great circle course can be set as soon as steady SE trade winds are found. During the southern winter (May to September), they often reach as far north as the Galapagos themselves.

In order to avoid an area of confused seas and little wind south of the Galapagos Islands, lying between longitudes 90°W and 95°W and latitudes 3°S and 8°S, boats leaving from Puerto Ayora

(Academy Bay), from WP PS131, east of Punta Estrada, should set an initial course for WP PS132 and thence to WP PS133. From there, a great circle course can be set for WP PS134, SE of Mangareva lagoon. Because of the reefs extending to windward on the east side of the large lagoon, Mangareva should not be approached from the east, but from the SE. From WP PS134 the course goes west roughly parallel to the line of reefs and enters the lagoon through Southwest Pass. Entry formalities in the Gambier can be completed at Rikitea, the settlement on Mangareva, the main island of the group.

A tempting stop on the way and close to the recommended route is the island of Pitcairn (25°04'S, 130°06'W), whose isolated community is always happy to welcome passing yachts.

PS14 South America to Easter Island

BEST TIME:	November to March
TROPICAL STORMS:	None
CHARTS:	BA: 4062 US: 62
PILOTS:	BA: 7, 62 US: 122, 125
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS14A				
PS141 Callao		PS142 Easter SE	Hanga Roa	2027
12°00'S, 77°18'W		27°08'S, 109°12'W	27°09'S, 109°26'W	
Route PS14B				
Valparaiso	Robinson Crusoe	PS142 Easter SE	Hanga Roa	1999
33°01'S, 71°38'W	33°38'S, 78°50'W			

Whichever point of departure is chosen, a passage to Easter Island from any port on the west coast of South America should present no great problem as favourable winds can be expected for most of the way. From ports lying to the north of Callao, a direct course can be steered immediately on leaving the mainland as favourable winds are prevalent in this area during most of the year. Although, according to the pilot charts, Easter Island lies slightly outside the SE trade wind belt, the winds between the island and the continent tend to blow between E and S most of the time. A direct course can also be sailed from ports lying further south, but if westerly winds are encountered, a NW course should be sailed until the SE trade winds are found. Those sailing along the coast of Chile with a favourable wind and current (route PS14B) should not set a course for Easter Island before the latitude

of Valparaiso has been crossed. The same should be done if intending to call first at Juan Fernandez Islands (Robinson Crusoe, Alexander Selkirk, and Santa Clara). They are dependencies of Chile and the main settlement is on Robinson Crusoe in Cumberland Bay.

Taking as a point of departure the Peruvian port of Callao, from WP PS141, north of San Lorenzo Island in Callao Bay, a great circle course is set for WP PS142, off Cape Roggeven, on the SE side of Easter Island. The island's south and SW coast is followed around to the main settlement at Hanga Roa, where officials are based and should be contacted on VHF channel 16. There is now a small port at Hanga Piko, south of Hanga Roa, with room for a few keeled boats, but the harbour cannot be entered or left during periods of heavy surge.

PS15 Easter Island to Pitcairn

BEST TIME:	November to March
TROPICAL STORMS:	None
CHARTS:	BA: 4061 US: 607
PILOTS:	BA: 62 US: 122, 125, 126
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>

ROUTES IN THE SOUTH PACIFIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS151 Easter W 27°08'S, 109°28'W		PS152 Pitcairn E 25°04'S, 130°04'W	Adamstown 25°04'S, 130°05.5'W	1117

Fair winds can be expected along this route during the best part of the year. The most settled weather is in summer, from December to May, when the SE trade winds extend furthest south. However, even during these months the trade wind pattern can be interrupted by spells of squally weather, rain, and variable winds. A direct course from Easter to Pitcairn Island leads well to the south of Ducie and Henderson islands, both of which are uninhabited. As they are nature reserves, landing is prohibited.

From WP PS151, off Hanga Roa, a direct route

can be set for WP PS152, so as to approach Pitcairn from the east. The nearest anchorage to the settlement of Adamstown is in Bounty Bay, off Pitcairn's NE coast. The small community monitors VHF channel 16 and a boat will be sent out to meet arriving yachts. The main anchorage is at Bounty Bay, but it is only tenable in very settled weather. Sometimes it may be possible to anchor at Tedside, on the west side of the island. All anchorages should be treated with suspicion as several boats have been lost on Pitcairn as the weather changed unexpectedly while the crew were ashore.

PS16 Pitcairn to Gambier Islands

BEST TIME:	March to June			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4061			
	US: 607			
PILOTS:	BA: 62			
	US: 122, 126			
CRUISING GUIDES:	<i>Landfalls of Paradise, Charlie's Charts of Polynesia.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS161 Pitcairn NW 25°03'S, 130°07'W		PS162 Mangareva SE Rikitea 23°20'S, 134°50'W	23°07'S, 134°58'W	296

This passage can be made at all times of the year as both Pitcairn and the Gambier group are very rarely threatened by cyclones. However, the first months of the year should be avoided so as not to arrive in French Polynesia during the cyclone season there. Best sailing conditions can be expected either at the beginning or the end of the southern winter. As this route skirts the southern extremity of the SE trades, weather conditions can be variable during winter months and westerly gales are not uncommon. The Gambier Islands should be approached with caution in thick weather as they can be hidden by low cloud and currents in their vicinity can be strong at times.

From WP PS161, NW of Pitcairn a direct course can be set for WP PS162, SE of Mangareva lagoon. Because of the reefs extending to windward of the large lagoon, Mangareva should be approached with caution. From WP PS162 the course follows roughly the line of the reefs and enters the lagoon through Southwest Pass. In poor visibility it may be advisable to use the Western Pass, between the islands of Taravai and Mangareva, as it has the best markings and is normally used by the supply ship from Tahiti. Entry formalities in the Gambier Islands are completed at Rikitea, the main settlement on Mangareva, the largest island of the group.

PS17 *Easter Island to Magellan Strait or Cape Horn*

BEST TIME:	December to February			
TROPICAL STORMS:	None			
CHARTS:	BA: 4062 US: 62			
PILOTS:	BA: 6, 62 US: 122, 124, 125			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS17A				
PS171 Easter SW	PS172	PS173 Pillar		2247
27°13'S, 109°27'W	45°00'S, 100°00'W	52°40'S, 74°50'W		
Route PS17B				
PS171 Easter SW	PS172	PS174 Chacao		2296
		41°40'S, 74°15'W		
Route PS17C				
PS171 Easter SW	PS175	PS176 Horn		2576
	50°00'S, 95°00'W	56°02'S, 67°15'W		

Although the number of boats that make Easter Island the starting point for a voyage to the stormy Southern Ocean is relatively small, the same route is used for much of its length by boats heading for the south of Chile. Just as Cape Horn or the Straits of Magellan are best reached from Easter Island with the help of the prevailing westerly winds of higher latitudes, so is the south of Chile. The main objective after leaving Easter Island is to reach the region of prevailing westerly winds as quickly as possible. By taking advantage of every shift of wind it ought to be possible to make some easting even before the Roaring Forties are reached, from where fair, if strong, winds can be expected. The proportion of gale force winds is highest in the vicinity of the southern tip of the American continent, the worst period being the winter months of June, July, and August and passages during these months should be avoided. The recommended time not only has the benefit of better winds en route, but also ensures arriving in Tierra del Fuego and Patagonia at the best time, which is at the height of the southern summer.

Taking WP PS171 as a departure point from Easter Island, the initial course will head in a SSE direction. As so much depends on weather conditions encountered at the time, WP PS172 has been given only as a guideline. Boats bound for the Magellan Strait (route PS17A) should set course for

PS173 as soon as the area of prevailing westerly winds has been reached. Landfall will be made at PS173 off Cape Pillar. Entering the Strait in heavy weather should be avoided, because strong currents create rough seas at the entrance to the Strait. Those wishing to visit the south of Chile and explore the Chilean channels on their way to the Magellan Strait, should make landfall further north in the approaches to Chacao Channel (route PS17B). The same suggestion applies as above and the latter channel should only be entered in settled weather and with a fair tide. To obtain this information, the Corona Lighthouse should be contacted on VHF channel 16 to request information on the state of the tide.

Boats bound for Cape Horn (route PS17C) will make most of their easting with the prevailing westerly winds, so that latitude 50°S is only crossed in about longitude 95°W (WP PS175). The course is then altered for PS176 to pass close to the south of Cape Horn. In recent years, most boats sailing this route have stopped in Tierra del Fuego, either by entering Beagle Channel immediately after having weathered Cape Horn, or by reaching Cape Horn itself through the relatively more sheltered channels to NW of it by choosing one of the landfalls described above.

After rounding Cape Horn, the route can pass either east or west of Staten Island. If the island is

ROUTES IN THE SOUTH PACIFIC

passed to seaward, a wide berth should be given to Cape St John, as a dangerous tide rip extends offshore for about six miles making conditions hazardous when the wind blows against the tide. Alternatively, the route can pass through Le Maire Strait, especially if the intention is to pass to

the west of the Falkland Islands. Going north through Le Maire Strait it is essential to wait for a fair tide and, if at all possible, a fair wind as well. Further directions for boats heading north into the Atlantic Ocean are given in routes AT26, AT27 and AS26 (pages 177, 178 and 193).

PS20 ROUTES IN EASTERN POLYNESIA

PS21 <i>Gambier to Marquesas</i>	293
PS22 <i>Marquesas to Tuamotus</i>	294
PS23 <i>Marquesas to Tahiti</i>	295
PS24 <i>Marquesas to Northern Cooks</i>	296
PS25 <i>Tahiti to Austral Islands</i>	296
PS26 <i>Tahiti to Cape Horn or Magellan Strait</i>	297

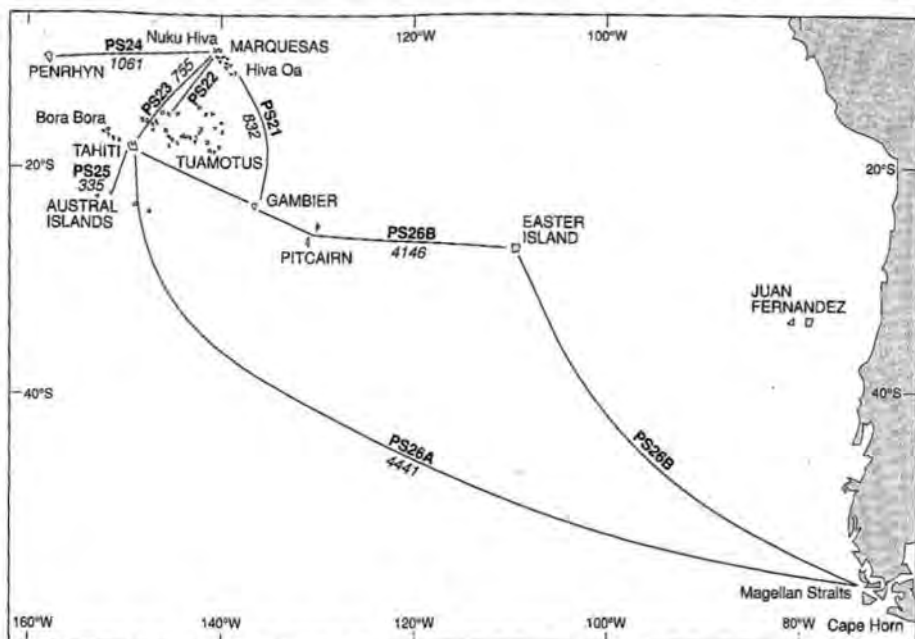
Whether arriving from the north (Hawaii), north-east (California or Panama), east (Galapagos), southeast (Easter or Pitcairn Island), or southwest (New Zealand), one should plan to arrive in French Polynesia not earlier than the beginning of April, when the cyclone season is on the wane and the SE trade wind season is about to begin. Such a timing will ensure several months of carefree cruising before the onset of the next cyclone season. Those with only a limited amount of time can spend about two months in French Polynesia, provided they arrive there in June. If one leaves the Society Islands only after the 14th July celebrations, which is an occasion few wish to miss, the safe cruising season in the rest of the tropics is well advanced and one has to be prepared to push on and probably spend the coming cyclone season in New Zealand, or some other safe place outside the tropics. The other alternative is to remain in the tropics during the summer, by staying close to one of the relatively safe harbours downwind from Tahiti, such as Pago Pago (American Samoa), Vava'u (Tonga), or Suva (Fiji). For those who decide to stay in the Society Islands, there are several harbours, both in the Windward and the Leeward Islands, that are reputed to be safe in a cyclone, although the authorities are increasingly reluctant to allow cruising boats to remain there during the cyclone season. Indeed, many sailors plan to spend the cyclone season there, not heeding the lessons of 1983, when several cyclones swept through French Polynesia. It is true that several years can go by without a cyclone hitting these islands, but when a cyclone comes this way it can wreak havoc. If one is prepared to take

this risk and stay in French Polynesia between December and March, one should try to be near one of the recommended ports. It must be pointed out, however, that in recent years the authorities in Papeete have occasionally forbidden crews to remain on board their boats during the cyclone season, although the boats themselves may be left unattended in a safe place, such as the marina at Raiatea.

Even without the danger of cyclones, summers ought to be avoided as the weather is much less pleasant than in winter, when from May to October the SE trade winds are normally in full force in these latitudes, although occasionally they can be interrupted by squalls and short periods of light winds and calms. During the summer months, from December to March, winds are less predictable and the weather can be hot and sultry. The Tuamotus should be avoided during the cyclone season as no anchorage can be regarded as really safe. Because of the revolving nature of these storms, even a relatively protected anchorage can quickly turn into a lee shore and the long fetch in most lagoons can create highly dangerous conditions for boats at anchor.

Satellite navigation has undoubtedly played a major part in opening the more remote islands, and especially the Tuamotus, to cruising boats, many of whose owners would not have dared pass through those waters without GPS. Although most of these dangers are now easier to avoid, it must be remembered that most charts of the area were drawn during the last century and many are quite inaccurate. Therefore positions obtained by GPS

PS20 ROUTES IN EASTERN POLYNESIA



PS20 Routes in Eastern Polynesia

will rarely agree completely with those taken off from a chart. This calls for extreme caution when in the vicinity of reefs or when sailing at night or in bad visibility. Nor should the strong currents that sweep through the area be ignored, which makes it essential to update one's position as frequently as possible. As many of the anchorages in the Tuamotus are in large lagoons, the long fetch will cause uncomfortable, and occasionally dangerous,

conditions in strong winds. Finally, being so heavily dependent on satellite navigation when navigating in the South Pacific, and particularly in such a difficult area as the Tuamotus, a second backup GPS, possibly portable, would be a wise investment. Just as useful will be tide tables as well as detailed charts. In the case of the Tuamotus, French charts are preferable as they are the most recent and are being updated regularly.

PS21 Gambier to Marquesas

BEST TIME:	April to September
TROPICAL STORMS:	December to March
CHARTS:	BA: 4607 US: 607
PILOTS:	BA: 62 US: 126
CRUISING GUIDES:	<i>Charlie's Charts of Polynesia, Landfalls of Paradise.</i>

CRUISING GUIDES: *Urututu's Charts of New Zealand, Cook Islands and Phoenix*

WAYPOINTS:

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance(M)</i>
PS221 Nuku Hiva S 9°00'S, 140°10'W		PS222 Takaroa N 14°20'S, 144°55'W	Teavaroa 14°29'S, 145°02.5'W	436

There are various routes that can be taken to or through the Tuamotus and the choice depends on how many islands one intends to visit before sailing on to Tahiti. The atolls of Takaroa and Manihi are the easiest option as there are no dangers en route from the Marquesas. Having stopped at one

or both, the route to Tahiti passes close to Ahe and Rangiroa. The alternative is to start further east at Takume or Raroia and then thread one's way through the islands. One of the easiest landfalls is at Takaroa, which has a clear pass which can be easily negotiated in good visibility. As there is a clear

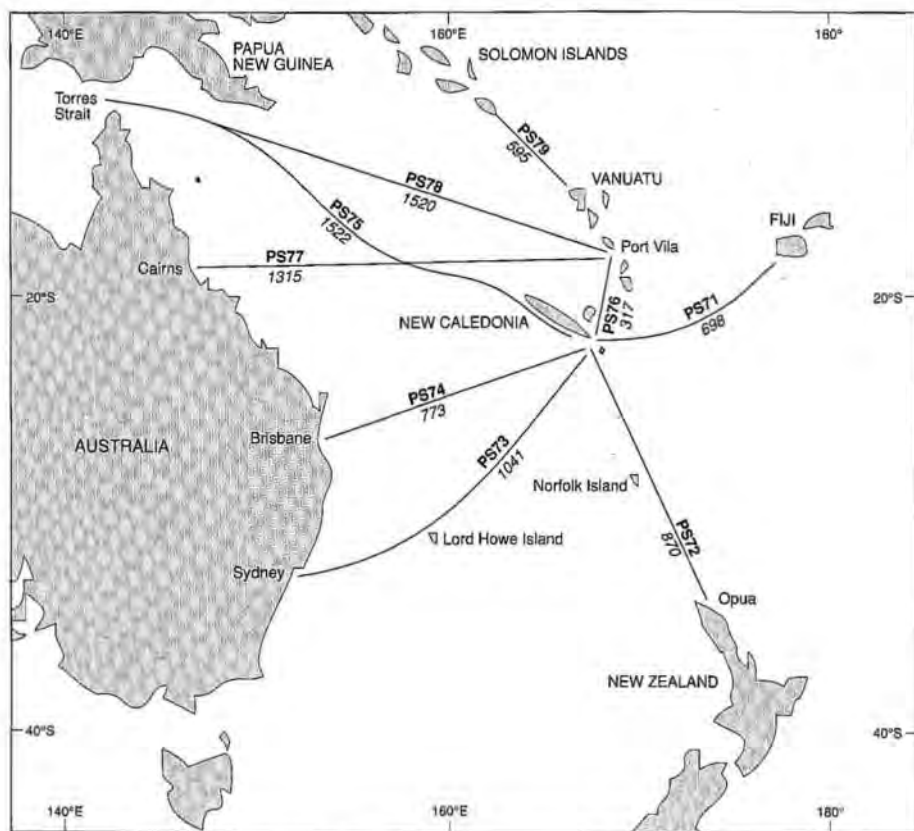
to Tahiti, it is still recommended to lay a safe course outside all dangers. The recommended practice in the past has been to wait and leave the Marquesas with a full moon, both for improved visibility at night and to be able to use a wider selection of celestial bodies in navigation.

The easiest route (PS23A) from Nuku Hiva to Tahiti passes close to Ahe. From WP PS231, SW of Nuku Hiva, a course should be set for WP PS232, north of Ahe, from where the course is altered to pass west of that atoll. The next course alteration, for WP PS233, will lead through the 20 mile gap

At full moon, one can sail the most direct route (PS23B) and thread a cautious course through the Tuamotus, possibly between Takaroa and Manihi (WP PS234) and then east of Rangiroa (WP PS235). Approaching Tahiti from NE, landfall is made NNE of the entrance into Papeete at WP PS236. The pass through the reef leading into the harbour is at 17°32.18'S, 149°35.1'W. Arriving boats should proceed to the quay on the south side of the harbour. Boats are not normally boarded and the captain is expected to visit the various offices, located close to the main cruise ship quay, during office hours.

PS70 ROUTES FROM SOUTHERN MELANESIA

PS71	<i>New Caledonia to Fiji</i>	337
PS72	<i>New Caledonia to New Zealand</i>	338
PS73	<i>New Caledonia to New South Wales</i>	339
PS74	<i>New Caledonia to Queensland</i>	339
PS75	<i>New Caledonia to Torres Strait</i>	340
PS76	<i>Vanuatu to New Caledonia</i>	341
PS77	<i>Vanuatu to North Queensland</i>	341
PS78	<i>Vanuatu to Torres Strait</i>	343
PS79	<i>Vanuatu to Solomon Islands</i>	343



PS70 Routes from Southern Melanesia

The routes grouped in this section and the following section PS80 all originate in one of the four Melanesian countries bordering on the Coral Sea. Routes from the other Melanesian country, Fiji, have been dealt with earlier. The western part of the South Pacific attracts significantly fewer cruising boats than its eastern part, although there is just as much to see. One of the main reasons is that by the time most cruising boats get to this part of the Pacific they are in a hurry to catch the favourable season in the Indian Ocean and therefore only have time to stop briefly in the main ports. As in so many other parts of the world, the delights of these islands can only be savoured if one reaches the more isolated and less frequented places and to do that one needs time. So it is worth bearing this in mind and allowing sufficient time for cruising when planning a voyage through these waters.

Tropical cyclones affect the entire region with the exception of Papua New Guinea north of approximately latitude 10°S. The critical period is December to the end of March when anyone would be ill advised to be cruising in this region. From April onwards the weather is good, although the SE trade winds tend to get almost too strong for some people's liking at the height of the southern winter in July and August, when consistent winds of around 25 knots are not uncommon. This is why

it is best to plan to cruise the area either from south to north or from east to west. Fortunately this fits in with most people's plans as the two main routes originate in either New Zealand or Fiji. The northbound route from New Zealand is used by people who have spent the cyclone season there, while those coming westward from Fiji usually sail later in the season, in August and September, both routes converging towards the Torres Strait and Indian Ocean.

Although the majority of routes are westbound, those who intend to sail east across the Coral Sea should plan to do so either before or after the onset of the SE trade winds which blow most consistently between May and September. Usually in early April the trade winds are not yet fully established and eastbound passages can be accomplished without great difficulty. However, there is a better chance of finding favourable winds in late October or early November at the start of the NW monsoon, although this must be weighed up against the risk of being caught out by an early cyclone. The period when these tropical storms occur in the Coral Sea should be treated with great suspicion as very few months are entirely free and cyclones have been recorded in both the accepted transitional months of June and November.

PS71 *New Caledonia to Fiji*

BEST TIME:	April			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602			
	US: 602			
PILOTS:	BA: 61			
	US: 126			
CRUISING GUIDES:	<i>Yachtsman's Fiji, Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS711 Havannah 22°20'S, 167°05'E	PS712 Vatulele N 18°25'S, 177°35'E	PS713 Daveta 18°12'S, 178°23.5'E	Suva 18°09'S, 178°26'E	667
PS711 Havannah		PS714 Navula 17°55'S, 177°10'E	Lautoka 17°36'S, 177°26'E	898

Because of prevailing E and SE winds this passage is mostly on the wind. A good time to sail this route is early in April, when the danger of a late cyclone is not great and the SE trades have not yet fully established themselves. Leaving either from the

main island of New Caledonia or from one of the Loyalty Islands, as much easting as possible should be made at the beginning of the passage. Having sailed through Havannah Passage, from WP PS711, SE of the main island of New Caledonia,

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the direct route passes between Maré Island and Durand Reef. The course leads to WP PS712, north of Vatulele Island from where the route continues to Suva through the Mbengga Channel, where strong contrary currents can be expected, to WP PS713. Having entered Suva Harbour through Daveta Passage, boats must proceed to the quarantine anchorage for clearance.

If such a direct course for Fiji cannot be sailed on account of the wind, and easting has to be made on a more southerly route, several dangers will be

passed closely. The first two islands, Matthew (22°21'S, 171°21'E) and Hunter (22°24'S, 172°05'E), are easily visible as they are quite high. Much more dangerous is the low reef Theva-i-Ra (21°44'S, 174°38'E), which should be given a wide berth. The name of this reef is sometimes spelt Ceva-i-Ra and is also known by its previous name Conway Reef.

Boats bound for Lautoka, on the west coast of Viti Levu, which is also a port of entry, should set course for WP PS714, at the entrance into Navua Passage.

PS72 New Caledonia to New Zealand

BEST TIME:	October to November			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602 US: 602			
PILOTS:	BA: 51, 61 US: 126, 127			
CRUISING GUIDES:	<i>Coastal Cruising Handbook of the Royal Arakana Yacht Club, Pickmere's Atlas of Northland's East Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS721 Boulari 22°31' S, 166°24'E	PS722 Norfolk E 29°00' S, 170°00'E	PS723 North Cape 34°20' S, 173°05'E	Opua	870
		PS724 Kerikeri 34°40' S, 173°30'E	Whangarei	925
		PS 725 Bream 35°50' S, 174°38'E	35°19' S, 174°07'E 35°44' S, 174°21'E	

Similar directions apply for this route as those given for route PS53 from Fiji to New Zealand. Boats starting off from New Caledonia have a better chance of encountering favourable winds as they are more to the west. Yet from the reports of boats that have made this passage in recent years it does appear that the proportion of headwinds were just as high, if not higher than those encountered by boats sailing direct from Fiji. Although this passage has been made at all times of the year November is considered to be the safest month as the danger of either an early hurricane or a late winter gale is not too great.

After leaving Noumea through the Boulari Pass, from WP PS721, the direct course passes some 100 miles east of Norfolk Island (WP PS722). As such a direct course can rarely be sailed and the SE winds likely to be encountered at the start of the

passage will probably set the boat to the west, many boats stop at Norfolk Island briefly. The anchorage off Kingston (29°01'S, 167°59'E) is only safe in settled weather and should be left if conditions deteriorate. Because from this latitude onwards the main danger is to be caught out by a SW gale, any ground lost to the west, whether by calling at Norfolk Island or staying on the port tack, can be made up nearer to New Zealand. Landfall will be made at WP PS723, off North Cape. The route then continues along the coast to WP PS724, off Cape Kerikeri at the entrance into the Bay of Islands. The most convenient ports of entry are Opua, in the Bay of Islands, or Whangarei, further down North Island's east coast. To reach the latter, the course should be set for PS725 in the approaches to Whangarei.

PS73 *New Caledonia to New South Wales*

BEST TIME:	April to May, September to mid-November			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602 US: 602			
PILOTS:	BA: 14, 15, 61 US: 126, 127			
CRUISING GUIDES:	<i>Circumnavigating Australia's Coastline.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
WP731 Dumbea 22°22'S, 166°14'E		PS732 Solitary 30°12'S, 153°20'E	Coffs Harbour 30°18'S, 153°09'E	844

The only conclusion to be drawn from the large number of people who have made this passage is that one can never be sure of the kind of weather to expect along this route. Favourable winds should be expected down to about latitude 30°S, as the proportion of easterly winds is generally higher, especially during the winter SE trade wind season. Further south, the frequency of SW gales increases as winter approaches. From this point of view the transitional months between summer and winter are preferable for this passage.

If it is not possible to lay a course for the desired port because of consistent headwinds, it may be better to try and reach the Australian coast by the shortest route and use the south-setting current to reach ports further south. South of Sandy Cape the prevailing winds off the coast are westerly from

May to September and NE from October to April. The south going current is generally strongest around the 100 fathom line.

Having left Noumea through Dumbea Pass, from WP PS731 a direct course can be sailed for Coffs Harbour and landfall made at WP PS732, off Solitary Island. Coffs Harbour is the northernmost port of entry into New South Wales, and because of the favourable south-setting current it is a convenient place to clear into Australia. From there it is easy to sail to more southern ports along the coast. Boats taking the direct route from New Caledonia to Sydney occasionally stop at Middleton (29°28'S, 159°04'E) and Elizabeth Reefs (29°55'S, 159°02'E). If not stopping or in unsettled weather, these reefs should be passed at a safe distance.

PS74 *New Caledonia to Queensland*

BEST TIME:	April to October			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602 US: 602			
PILOTS:	BA: 15, 61 US: 126, 127			
CRUISING GUIDES:	<i>Cruising the Coral Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS741 Dumbea 22°22'S, 166°14'E		PS742 Moreton 27°20'S, 153°30'E	Brisbane 27°19'S, 153°10'E	773
PS741 Dumbea		PS743 Curtis 24°15'S, 153°00'E	Bundaberg 24°46'S, 152°23'E	784
PS741 Dumbea		PS744 Capricorn 22°50'S, 152°00'E	Mackay 21°06'S, 149°13'E	977

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Favourable winds can be expected between New Caledonia and the Queensland coast throughout the SE trade wind season, although westerly winds can sometimes be encountered on routes that lead to ports in South Queensland, mainly in winter. If persistent headwinds make it difficult to lay a direct course for ports lying south of Sandy Cape, it is better to stay on the port tack, make landfall further up the coast and use the strong south-setting current to reach the desired port. Because of the large number of reefs dotted about the southern part of the Coral Sea, to reach ports lying north of Sandy Cape it is normally easier to sail inside the Great Barrier Reef, which can be entered through

several passes. Curtis Channel should be used for Bundaberg and Gladstone, while Capricorn Channel is convenient for ports lying further north.

Having left Noumea and reached the open sea through Dumbea Pass, from WP PS741, a direct course can be set for various destinations in South Queensland. Boats bound for Brisbane should set a course for WP PS742, east of Moreton Island, in the approaches to the Queensland capital. If bound for Bundaberg, landfall will be made at WP PS743, off Lady Elliot Island, whereas for ports reached through the Capricorn Channel, such as Mackay, a course should be steered for WP PS744. For routes to ports in North Queensland see PS77.

PS75 *New Caledonia to Torres Strait*

BEST TIME:	May to October			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 780 US: 526			
PILOTS:	BA: 15, 61 US: 126, 127, 164			
CRUISING GUIDES:	<i>Cruising the Coral Coast.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
PS751 Dumbea 22°22'S, 166°14'E	PS752 21°40'S, 165°00'E			
	PS753 17°30'S, 160°00'E	PS754 Eastern 9°40'S, 145°50'E	PS755 Bligh 9°15'S, 144°00'E	1522

This route across the Coral Sea lies within the SE trade wind belt and favourable winds can be expected throughout the winter months. However, cyclones can occur in the Coral Sea both during the summer and autumn months and, although in most years this passage can be made at any time after the middle of April, it is safer not to attempt it before the middle of June.

After leaving Noumea through Dumbea Pass, from WP PS751 a parallel course to the coast should be steered to pass between the main island and the various dangers lying to the west of New Caledonia. From WP PS752, a new course can be set for WP PS753 to stay clear of all dangers. This direct route to the Torres Strait has the great advantage that it avoids all known dangers right up to the entrance into Torres Strait. The route runs parallel

to the Papuan coast to WP PS754 to pass NE of Eastern Fields, the first dangerous reefs in the eastern approaches to Torres Strait. The course should then be altered to pass clear of Goldie Reef and enter the Great NE Channel, which goes west of Bramble Cay. If WP PS754 is reached in good light, it may be possible to use Bligh Channel and stay south of Bramble Cay. Whichever route is taken, great care must be taken both in the approaches to the Torres Strait and in the channels leading through it as the numerous reefs make navigation extremely difficult and dangerous. More detailed directions on the approaches to the Torres Strait are given in route PS85 (page 348). The continuation of the route to Darwin, in Northern Australia, is described in IS11 (page 400).

PS76 Vanuatu to New Caledonia

BEST TIME:	April to November
TROPICAL STORMS:	December to March
CHARTS:	BA: 4802 US: 602
PILOTS:	BA: 61 US: 126
CRUISING GUIDES:	<i>Cruising in New Caledonia.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
PS761 Efate S 17°46'S, 168°12'E	PS762 Lifou 21°00'S, 167°32'E	PS763 Havannah 22°20'S, 167°05'E	Noumea 22°16'S, 166°27'E	317

This passage is rarely made nonstop as most of those who sail this route try to visit some of the southern islands of Vanuatu on the way. Permission to do this should be sought before leaving Vila. It is also possible to stop at some of New Caledonia's Loyalty Islands before continuing to Noumea via Havannah Pass, although in principle one should have cleared into New Caledonia first. From WP PS761, SW of Efate, the direct course for Havannah Pass, at the SE extremity of New Caledonia, goes right past Lifou Island, at WP PS762. If not stopping at Lifou Island, the pass between it and Maré should be negotiated in good light before making for WP PS763, in the approaches to Havannah Pass. This pass should be negotiated on a flood tide. Due to the prevailing SE winds the tide sets very strongly through the pass creating large waves when the ebb tide runs against a strong wind.

The other alternative, that of sailing west from Vila and reaching New Caledonia through Grand

Passage, is not recommended because of the near certainty of encountering strong headwinds when sailing along the west side of New Caledonia. Because the trade winds are deflected by the large landmass, SE winds tend to become southerly on the west side of New Caledonia.

Noumea is New Caledonia's only port of entry and all boats must clear in there. Approaches into Noumea are difficult at night and should not be attempted. If coming from either Boulari or Havannah Pass and if Noumea cannot be reached in daylight it is recommended to anchor for the night and enter the port the following morning. Arriving boats should contact Port Moselle on channel 67 to arrange a berth at the visitor's dock. The marina will contact customs and immigration for clearance. Although New Caledonia is a French overseas territory, a bond is not required from cruising boats as in the case of French Polynesia.

PS77 Vanuatu to North Queensland

BEST TIME:	May to September
TROPICAL STORMS:	December to April
CHARTS:	BA: 780 US: 526
PILOTS:	BA: 15, 61 US: 126, 127
CRUISING GUIDES:	<i>Cruising the Coral Coast.</i>

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WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS77A				
PS771 Efate W 17°46'S, 168°08'E	PS772 Entrecasteaux 17°30'S, 163°00'E			
	PS773 Mellish 18°00'S, 156°00'E			
	PS774 Marion 18°20'S, 152°00'E	PS775 Flinders 18°35'S, 149°20'E	Townsville 19°15'S, 146°50'E	1229
Route PS77B				
PS771 Efate W	PS776 Sand 15°25'S, 149°38'E	PS777 Grafton 16°38'S, 146°15'E	Cairns 16°56'S, 145°47'E	1315
Route PS77C				
Luganville 15°31'S, 167°10'E	PS778 Santo W 15°40'S, 166°45'E	PS777 Grafton	Cairns	1257

Steady winds and a favourable current usually ensure a fast passage across the Coral Sea although there are many reefs waiting to strike the unwary. Thanks to satellite navigation passages are now much safer, but utmost attention is still required when navigating through this area.

An almost direct route can be sailed from Efate to North Queensland (PS77A) by sailing a middle course between the various dangers. From WP PS771, SW of Efate Island, an initial course is set for WP PS772, north of the d'Entrecasteaux Reefs. A slight course alteration is needed to reach WP PS773 to pass south of Mellish Reef. The route then goes to WP PS774 to pass halfway between Lihou and Marion Reefs. Finally, a course is set for WP PS775 from where Flinders Passage can be taken to reach Townsville, the nearest port of entry into Australia. This route is also joined by boats coming from Noumea and bound for the North Queensland coast.

Boats bound for ports lying further north should stay outside the Great Barrier Reef on a parallel course to it and use one of the other passes to reach the coast. Because of its convenient position at the heart of the Great Barrier Reef, Cairns in North Queensland is a popular destination for

cruising boats. There are extensive reefs on the direct route from Port Vila to Cairns (PS77B) and the safest route is to leave them all to port by setting a course for the light on Bougainville Reef (15°32'S, 147°08'E). From WP PS771, SW of Efate, a course is set for WP PS776, 12 miles north of Sand Cay on Diane Bank. From that point, the course can be altered for WP PS777, two miles north of Euston Reef light at the entrance into Grafton Passage. Because of the various dangers, and also strong currents in the area, the course should not be altered for Grafton Pass until confident that one is well past the northernmost of Moore Reefs (15°52'S, 149°10'E). Grafton Pass is recommended as it is used by commercial shipping and is well buoyed and lit. Cairns is the official port of entry for that area and has a good range of yachting facilities.

An easier course across the Coral Sea can be sailed by those who clear out of Vanuatu at Luganville, on Espiritu Santo Island, from where the direct route to Bougainville Light (PS77C) passes clear of all dangers. Having reached the open sea, from WP PS778, SW of Espiritu Santo, a course is set for WP PS776, north of Sand Cay. From there similar directions apply as described above to reach Grafton Pass at WP PS777.

PS78 *Vanuatu to Torres Strait*

BEST TIME:	May to October			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 780 US: 526			
PILOTS:	BA: 15, 61 US: 126, 127, 164			
CRUISING GUIDES:	<i>Cruising the Coral Coast</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS781 Efate W 17°46'S, 168°08'E	PS782 Papua 11°30'S, 149°00'E PS783 Eastern 9°40'S, 145°50'E	PS784 Bligh 9°15'S, 144°00'E	Thursday Island 10°35'S, 142°13'E	1130

This is a long passage across the entire breadth of the Coral Sea but good winds can be expected throughout the SE trade wind season. During the winter months the SE trade winds blow strongly and consistently along this route and fast passages have been accomplished, especially between July and early September. Although December to March are the months with the highest incidence of cyclones in the Coral Sea, it must be stressed that these can occur as late as June and this should be borne in mind when planning passages across the Coral Sea.

From WP PS781, SW of Matao Tiupeniu Point, on Efate Island, a direct course can be set for WP PS782. From there, the route runs parallel to the

Papuan coast to WP PS783 to pass NE of Eastern Fields, the first dangerous reefs in the eastern approaches to Torres Strait. Course is then altered to pass clear of Goldie Reef and enter the Great NE Channel. If WP PS783 is reached in good light it may be possible to use Bligh Channel and stay south of Bramble Cay. Whichever route is taken, great care must be taken both in the approaches to the Torres Strait and in the channels leading through it as the numerous reefs make navigation extremely difficult and dangerous. More detailed directions on the approaches to the Torres Strait are given in route PS85 (page 348). The continuation of the route to Darwin, in Northern Australia, is described in IS11 (page 400).

PS79 *Vanuatu to Solomon Islands*

BEST TIME:	May to October			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 4604 US: 604			
PILOTS:	BA: 80, 61 US: 126			
CRUISING GUIDES:	<i>Landfalls of Paradise</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Luganville 15°31'S, 167°10'E	PS791 Santo E 15°33'S, 167°20'E PS792 Santo NE 15°00'S, 167°22'E	PS793 Santa Ana 10°50'S, 162°35'E	Honiara 9°25'S, 159°58'E	595

ROUTES IN THE SOUTH PACIFIC

Having sailed through the island chain of Vanuatu, the 300 mile passage to the Solomon Islands is straightforward, especially as the winds tend to be favourable throughout the SE trade wind season. During July and August the trades blow strongly, making this a fast but rough passage. Both at the beginning and towards the end of the winter season the trade winds are less consistent and days with calms or westerly winds are common.

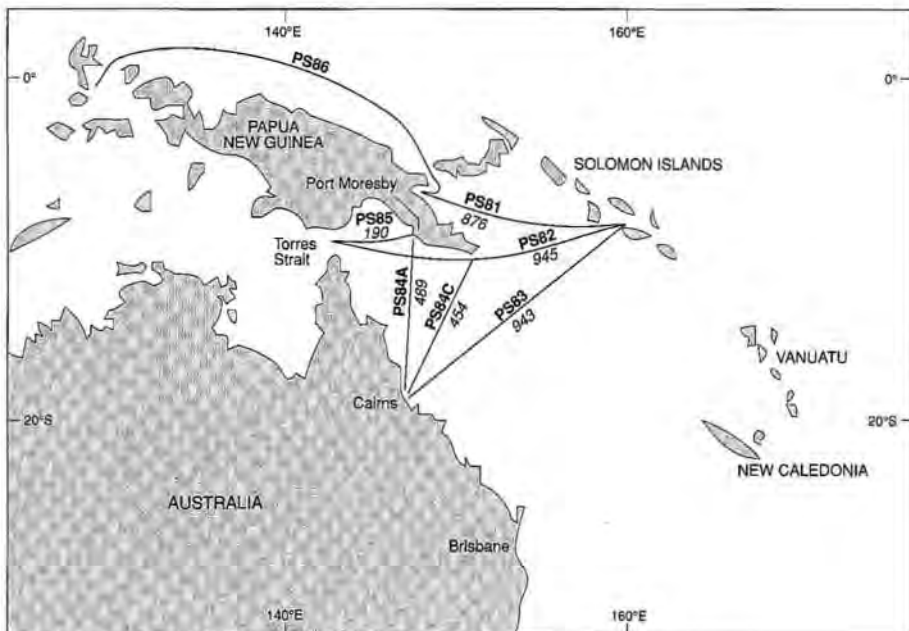
From Luganville the south coast of Espiritu Santo is followed to WP PS791. From there a course is set for WP PS792. The course runs almost due north

parallel to the coast before course is altered for WP PS793 to make landfall SE of Santa Ana Island, a small island lying close to the east of San Cristobal Island. During strong SE winds, if bound for Honiara, it is better to stay in the lee of San Cristobal, which offers good shelter along its north coast. Entry formalities can be completed at the capital Honiara, on the north coast of Guadalcanal.

A more convenient port of entry into the Solomons may be Graciosa Bay (10°44'S, 165°49'E), on Ndende Island in the Santa Cruz group, lying almost due north of Vanuatu.

PS80 ROUTES FROM NORTHERN MELANESIA

PS81 <i>Solomon Islands to Papua New Guinea</i>	345
PS82 <i>Solomon Islands to Torres Strait</i>	345
PS83 <i>Solomon Islands to Queensland</i>	346
PS84 <i>Papua New Guinea to Queensland</i>	347
PS85 <i>Papua New Guinea to Torres Strait</i>	348
PS86 <i>Papua New Guinea to Indonesia</i>	349



PS80 Routes from Northern Melanesia

PS81 Solomon Islands to Papua New Guinea

BEST TIME:	April to November
TROPICAL STORMS:	December to April
CHARTS:	BA: 780 US: 604
PILOTS:	BA: 60 US: 126, 164
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>

The cyclone season in the Solomon Islands coincides with the NW monsoon which affects most of Papua New Guinea and the northwestern half of the Solomons. Most people try to leave the Solomons by early December not only to avoid the approaching cyclone season, but also the headwinds that can be expected on this route during the NW monsoon. As the majority of those who sail between these two countries have usually cruised along the Solomon Islands chain, the crossing to Papua New Guinea is hardly an ocean passage. The best point of departure is Korovou, on Shortland Island (7°04'S, 155°52'E), where departure formalities can be completed.

Bougainville Island, the nearest island in Papua New Guinea, has been involved in a dispute with the Port Moresby government and while hostilities last yachts should keep well away from the island. The most popular destination in the area is Rabaul (4°12'S, 152°11'E), on New Britain Island, 260 miles across the Solomon Sea. This well protected harbour is also a port of entry for Papua

New Guinea, its main disadvantage being the fact that it lies in the proximity of an active volcano, which has erupted recently. Volcanic activity in the area is being carefully monitored, but the area should be avoided until life returns to normal. Arriving boats should proceed to the main wharf in the northern part of Simpson Harbour to complete entry formalities. Cruising yachts normally anchor off the yacht club on the east side of the harbour but the club was badly damaged by the latest eruption.

From April to October the winds in the Solomon Sea blow mostly from the SE. During the transition period between the SE trade wind season and the NW monsoon, the winds are variable and there are also prolonged periods of calm. When negotiating St George's Channel between the islands of New Britain and New Ireland, attention should be paid to the currents, which set to the south during the NW monsoon and to the north during the SE trade wind season.

PS82 Solomon Islands to Torres Strait

BEST TIME:	May to September
TROPICAL STORMS:	December to April
CHARTS:	BA: 780 US: 526
PILOTS:	BA: 15, 60 US: 126, 164

WAYPOINTS:

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS821 Guadalcanal 9°18'S, 159°30'E	PS822 12°00'S, 153°55'E PS823 12°00'S, 150°00'E	PS824 Portlock 9°15'S, 145°00'E	PS825 Bligh 9°15'S, 144°00'E	Thursday Island 10°35'S, 142°13'E
				1130

ROUTES IN THE SOUTH PACIFIC

The chances of a fast passage to the Torres Strait are best when the SE trade winds are still in force. This timing will also ensure favourable winds west of the Strait. With the approach of the NW monsoon, the SE trade winds become less reliable and by the end of September the onward leg from the Torres Strait will have light winds. The currents on this route set strongly NW and this should be taken into account if the course passes too closely to the reefs off Papua New Guinea.

Boats leaving from Honiara will have an easier route to sail and also a better wind angle than boats leaving from ports further west. The route from Honiara leaves Guadalcanal to port and from WP PS821, off the NW point of that island, a course can be set to WP PS822 to pass well clear of Pockington

Reef and Adele Island. The route then continues along the same latitude south of the Louisiade Islands to WP PS823 from where a new course is set for WP PS824, north of Portlock Reef. Another course alteration is then made for WP PS825, in Bligh entrance, 10 miles SE of Bramble Cay. From Bramble Cay the route enters North East Channel. This well marked channel runs in a SW direction for some 130 miles to the Prince of Wales Channel that finally opens into the Arafura Sea. Additional details on approaches to the Torres Strait are given in route PS85 (page 348). The continuation of the route to Darwin is described in IS11 (page 400). Thursday Island is an official port of entry into Australia.

PS83 Solomon Islands to Queensland

BEST TIME:	May to September			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 780 US: 526			
PILOTS:	BA: 15, 60 US: 126, 127			
CRUISING GUIDES:	<i>Cruising the Coral Coast, Circumnavigating Australia's Coastline.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS831 Guadalcanal 9°18'S, 159°30'E	PS832 Mellish 17°30'S, 156°45'E PS833 Kenn 21°20'S, 155°00'E	PS834 Moreton NW 26°50'S, 153°20'E	Brisbane 27°19'S, 153°10'E	1141

The approach of the cyclone season brings an exodus of cruising boats from the Solomons, either north to Papua New Guinea (route PS81) or south to Australia. A popular place to spend the summer is the Queensland capital Brisbane. The route across the Coral Sea has good winds at least until September. Those who leave too late can expect anything, including the possibility of a tropical depression, which may or may not develop into a fully fledged cyclone. Extremely strong winds have been encountered in the Coral Sea in November when a depression moves over the area.

From WP PS831, off the NW tip of Guadalcanal, a course can be set for WP PS832 to pass east of Mellish Reef. The route continues to WP PS833 to pass between Saumarez and Wreck Reefs. Landfall

is made at WP PS834 in the northern approaches to Brisbane. There are several reefs en route where one may be tempted to stop in good weather, the largest being Chesterfield Reef which has several anchorages where yachts have stopped in the past. The reef belongs nominally to France and is administered as part of its New Caledonia territory. There is an unattended meteorological station on one of the cays. There are several passes through the reef, the widest being Long Island Pass, but it is affected by the swell, strong currents, and overfalls. The narrower Passage Pass is calmer and easier to negotiate. There is a protected anchorage off Loop Islet in the southern part of the large lagoon. The entire area is an important breeding ground for birds and turtles.

PS84 Papua New Guinea to Queensland

BEST TIME:	April to October			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 780 US: 526			
PILOTS:	BA: 15, 60 US: 127, 164			
CRUISING GUIDES:	<i>Cruising the Coral Coast, Circumnavigating Australia's Coastline.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS84A				
PS841 Basilisk SE 9°34'S, 147°07'E	PS842 Bougainville 15°30'S, 147°30'E	PS843 Grafton 16°35'S, 146°25'E	Cairns 16°56'S, 145°47'E	489
Route PS84B				
PS841 Basilisk SE		PS844 One Half 14°20'S, 145°30'E		301
Route PS84C				
PS845 Brumer 10°52'S, 150°15'E	PS842 Bougainville	PS843 Grafton	Cairns	454

The attraction of a sheltered sail in smooth waters tempts most people to go behind the Great Barrier Reef as soon as they have the Coral Sea behind them. If coming from Port Moresby, the choice is large as there are several passes that lead through the reef, from Flinders Entrance in the north to Cook's Pass in the south, a distance of some 250 miles. Coming from other parts of Papua New Guinea, probably the most convenient pass is Grafton Passage that leads into Cairns, the nearest port of entry in Northern Queensland. Thursday Island, in Torres Strait, is also a port of entry, but only a few boats take this roundabout way from Port Moresby to Queensland.

The winds in the Coral Sea blow mostly from the E or SE between April and October so that a more easterly departure point in Papua New Guinea normally ensures a better slant across the prevailing winds. Between May and August the trade winds can sometimes be very strong, but during the transitional months they are often light and the weather can be squally. NW winds predominate in summer, which is also the cyclone season. Because of the west-setting current and the many reefs lying to leeward, navigation in the Coral Sea must be very accurate and finding the passes through the Great Barrier Reef can be often difficult.

Having left Port Moresby through Basilisk Pass, from WP PS841, the safest offshore route

(PS84A) leads to the east of Osprey and Shark Reefs to WP PS842, east of Bougainville Reef, which has a powerful light and provides a convenient point of reference. A slight course alteration is then made for WP PS843 outside Grafton Passage. A well buoyed and lit channel leads into Cairns.

A slightly shorter offshore route (PS84B) can be taken from Port Moresby to WP PS844 from where the One and a Half Mile Opening (14°25'S, 145°26'E) is used to reach the sheltered waters behind the Great Barrier Reef on the way to Cairns, the nearest official port of entry into Australia.

For boats that have cruised the eastern part of Papua New Guinea, a departure from Samarai through the China Strait has the advantage of a virtually clear run across the Coral Sea (PS84C). Having passed Brumer Island and gained the open sea, from WP PS845, a direct course can be set for WP PS842, the same waypoint recommended as for the offshore route from Port Moresby. The course can then be altered for WP PS843 outside Grafton Passage.

The Australian authorities must be contacted at least three hours before arrival in a port of entry on either 2182 kHz or VHF channel 16 to request clearance. Stopping anywhere before having cleared in is strictly prohibited and everyone on board, including the captain, must have a visa for Australia.

PS85 Papua New Guinea to Torres Strait

BEST TIME:	April to September			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 1039 US: 603			
PILOTS:	BA: 15, 60 US: 164			
WAYPOINTS:				
CRUISING GUIDE:	<i>Cruising the Coral Coast.</i>			
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS851 Basilisk SW 9°34'S, 147°05'E	PS852 Portlock 9°15'S, 145°00'E	PS853 Bligh 9°15'S, 144°00'E	Thursday Island 10°35'S, 142°13'E	319

In the days before satellite navigation, Port Moresby was the preferred port of departure for the passage to the Torres Strait. This was a logical choice as the various difficulties associated with navigation through the Torres Strait made it essential to plan the time of arrival in the eastern approaches to the Strait so as to minimise the risk of passing close to some of the reefs at night. Although satellite navigation has greatly simplified matters, a start from Port Moresby still makes it easier to time one's arrival more accurately than if one leaves from a more distant port.

The first danger en route is Portlock Reef, at a distance of 130 miles from Port Moresby. Goldie Reef is 20 miles NNW of Portlock. Ideally one should try to arrive off Portlock Reef in late afternoon, so as to pass between it and Goldie Reef during daylight. The next point to make for is Bramble Cay, lying some 65 miles further west. The distance between Portlock and Bramble Cay can be covered during the hours of darkness, and as there is a light with 14 miles visibility on Bramble Cay this should be sighted before dawn. Such a timing would mean that Bramble Cay is passed in the early morning and that most of the subsequent reefs and islets will also be negotiated in daylight. The other alternative, especially for faster boats, is to arrive off Portlock Reef in the morning so that the remaining distance to Bramble Cay is covered in daylight. The disadvantage of the latter alternative is that Portlock Reef has no light, thus making it very dangerous to arrive in its vicinity at night.

Leaving Port Moresby through Basilisk Pass, from WP PS851 a course can be set for WP PS852, north of Portlock Reef. The course is then altered for WP PS853, in Bligh entrance, 10 miles SE of Bramble Cay. From Bramble Cay the route enters

North East Channel. This well marked channel runs in a SW direction for some 130 miles to the Prince of Wales Channel that finally opens into the Arafura Sea. The continuation of this route is described in IS11 and IS12 (page 400).

The winds on this passage are predominantly easterly and between June and August they are often strong. The currents running through the Strait have a strong westerly set at the height of the SE trades, but their rates are unpredictable. The currents are also tidal and in the Strait itself they run WSW on the flood and NE on the ebb tide. The strongest sets have been recorded in the Prince of Wales Channel, where 5 and 6 knot currents are the order of the day. Another hazard in the eastern approaches is the shallow water that extends far offshore so that the depth sounder cannot give a reliable indication of one's position. Yet another cause of confusion are the murky waters met far offshore caused by a muddy discharge from the Fly River. The colour of the water gives no indication of its depth.

Although navigation through this reef strewn area is not difficult after landfall on Bramble Cay, it is easier to sail in daylight and spend the nights at anchor behind one of the many cays. It must be pointed out, however, that landing on any of the islands is not allowed, as these belong to Australia and legally one should clear in first at Thursday Island. This is impossible for boats coming from the east, so one should heed the above advice and only anchor if absolutely necessary and neither go ashore nor have contact with any other vessel. Australian Coast Guard helicopters regularly overfly the area to ensure that these regulations are not violated and those who ignore them are severely punished.

PS86 Papua New Guinea to Indonesia

BEST TIME:	May to September
TROPICAL STORMS:	None
CHARTS:	BA: 4507 US: 524
PILOTS:	BA: 35, 60 US: 164

The difficulties associated with the passage through the Torres Strait and the long detour to Port Moresby, persuades some people to reach Indonesia by sailing along the north coast of New Guinea. This northern route is used mostly by boats that have spent the cyclone season in the eastern part of Papua New Guinea or have been cruising in that area and are therefore better poised for this route. It also gives the opportunity to visit the Hermit and Ninigo Islands before clearing out of Papua New Guinea at Vanimo (2°41'S, 141°18'E).

This is a passage that can be done only during the SE trade wind season, as during the NW monsoon, from November to March, both winds and current are contrary. The transitional period is difficult to define, as in some years the NW monsoon comes early, while in others the SE trade winds do not establish themselves until May. Normally this passage should not be attempted after the middle of

November or before the middle of April. Although the weather along this route is governed by the two monsoons, the winds are rarely steady in either direction or strength and there are many days when they are light or nonexistent. Calms are particularly frequent during the transitional period. The most constant SE winds usually occur in July and August when there is also a very strong NW setting current, with rates that can exceed 2 knots.

Jayapura, the capital of the Indonesian province of Irian Jaya (Western Irian), is the official port of entry (2°32'S, 140°43'E). The town has changed its name to Sukarnapura, while in the colonial past it used to be known as Hollandia. Yachts without a cruising permit should enquire at the Indonesian Embassy in Port Moresby whether they would be allowed to make an emergency stop in Jayapura before committing themselves to this route.

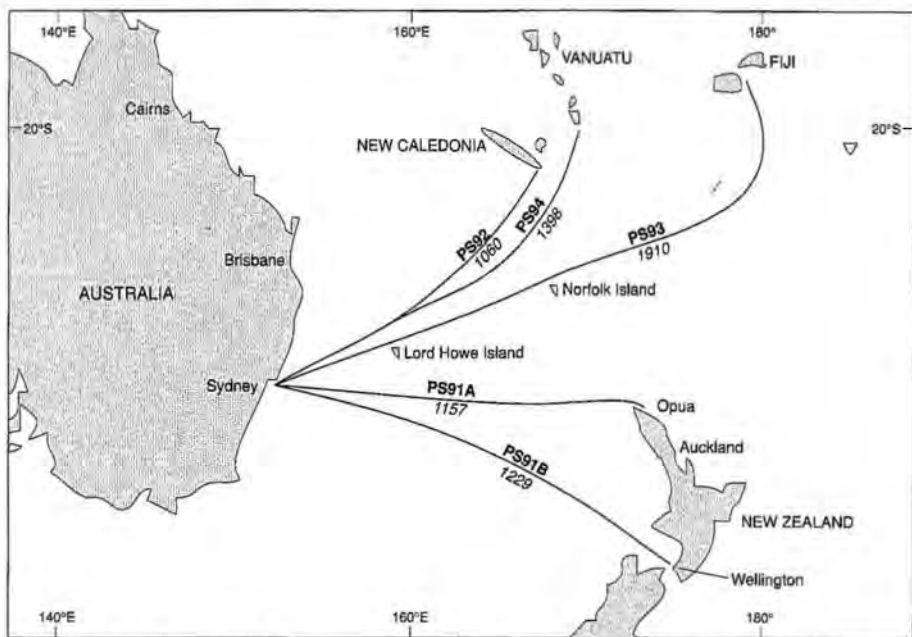
PS90 ROUTES FROM NEW SOUTH WALES

PS91 New South Wales to New Zealand	350
PS92 New South Wales to New Caledonia	351
PS93 New South Wales to Fiji	352
PS94 New South Wales to Vanuatu	353

Australian sailors have the entire South Pacific on their doorstep, yet reaching most of the Pacific islands is seldom easy, as the winds between the east coast of Australia and the island groups to the east are usually contrary. For this reason most Australians setting off on a world voyage prefer to leave the South Pacific until the end of their trip when most of the sailing will be downwind. For those whose plans are less ambitious than a circumnavigation of the world, the accepted practice

is to sail first to New Zealand, which makes a much better stepping off point for a cruise among the South Sea islands than Australia itself. Shorter cruises from Australia's east coast lead across the Coral Sea, the more southern destinations, such as New Caledonia, being reached directly, whereas for destinations in Papua New Guinea it is usually better to stay for a while inside the Great Barrier Reef before taking an offshore route.

ROUTES IN THE SOUTH PACIFIC



PS90 Routes from New South Wales

PS91 New South Wales to New Zealand

BEST TIME: November to March
TROPICAL STORMS: December to March
CHARTS: BA: 780, 4061
 US: 622
PILOTS: BA: 14, 15, 51
 US: 127
CRUISING GUIDES: *Coastal Cruising Handbook of the Royal Arakana Yacht Club, Pickmere's Atlas of Northland's East Coast.*

WAYPOINTS:

Departure	Intermediate	Landfall	Destination	Distance (M)
Route PS91A				
PS911 Jackson	PS912 Kings	PS913 North Cape	Opua	1157
33°50'S, 151°20'E	34°20'S, 171°50'E	34°20'S, 173°05'E	35°18'S, 174°08'E	
		PS914 Bream	Whangarei	1213
		35°50'S, 174°38'E	35°44'S, 174°21'E	
Route PS91B				
PS911 Jackson	PS915 Stephens	PS916 Cook	Wellington	1229
	40°30'S, 174°20'E	41°20'S, 174°30'E	41°17'S, 174°46'E	

This passage across the Tasman Sea can occasionally be very rough and it pays to wait for a favourable forecast before leaving. Lows moving across the Tasman Sea are accompanied by strong SW winds, often of gale force, and it may be worth leaving on the tail of such a gale, which will usually ensure several days of favourable winds. Although the proportion of westerly winds is higher in winter, a passage between June and September is not recommended because of the likelihood of encountering at least one severe gale. The best months for the crossing are January and February when conditions are often settled and winds are light. Although these months coincide with the cyclone season in the South Pacific, tropical cyclones rarely find their way to these latitudes, and even when they do their force is usually spent. The Tasman Sea is affected more by extratropical cyclones, although these normally only touch its southern part and have a higher frequency in winter, another good reason to avoid a passage during that time.

The route from southern ports is direct, but a stop at Lord Howe Island might be considered by those leaving from northerly ports. Boats leaving from Sydney on a direct passage to North Island (route PS91A), from WP PS911 outside Port Jackson, can set a course for WP PS912 south of the Three Kings, a group of rocks NW of Cape Reinga. Having made landfall at PS913, off North Cape, the nearest ports of entry are Opuia, in the Bay of Islands, or Whangarei.

From ports south of Sydney, a more direct route (PS91B) leads through Cook Strait to Wellington, this more southerly route having a better chance of westerly winds. From WP PS911 outside Sydney, a course can be set for PS915 off D'Urville island in the approaches to Cook Strait. From there the course is altered for WP PS916 in the Cook Strait before proceeding into Wellington. Wellington Radio should be contacted on 2182 or 4125 kHz, or VHF channel 16, not later than 12 hours before arrival to arrange clearance.

PS92 *New South Wales to New Caledonia*

BEST TIME:	April to June
TROPICAL STORMS:	December to March
CHARTS:	BA: 4602 US: 602
PILOTS:	BA: 15, 61 US: 126, 127
CRUISING GUIDES:	<i>Cruising in New Caledonia.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS921 Jackson 33°50'S, 151°20'E		PS922 Dumbea 22°22'S, 166°14'E	Noumea 22°16'S, 166°26'E	1060

Because of the danger posed by cyclones during the summer, this passage should not be undertaken before the end of March. There is always a high proportion of easterly winds on this route, but more favourable conditions may be found during the transition period, in April and early May, before the onset of the strong easterlies of winter.

The initial course should lead straight offshore to pass quickly through the current that sets strongly south along the Australian coast. As the route from southern ports in New South Wales passes close to Lord Howe Island, a stop there may be con-

sidered. Most routes also pass close to Minerva and Elizabeth Reefs, which are best avoided, although it is possible to anchor there in settled weather.

From WP PS921, outside Port Jackson, a direct course can be set for New Caledonia where landfall is made at WP PS922 outside Dumbea Pass. Noumea is New Caledonia's only port of entry and all boats must clear there. Approaches into Noumea are difficult and should not be attempted at night. Arriving boats should contact Port Moselle on VHF channel 67 to arrange a berth at the visitor's dock, where they will be cleared in.

PS93 New South Wales to Fiji

BEST TIME:	April to June			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602			
	US: 602			
PILOTS:	BA: 15, 61			
	US: 126, 127			
CRUISING GUIDES:	<i>Yachtsman's Fiji, Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS93A				
PS931 Jackson	PS932			
33°50'S, 151°20'E	32°00'S, 170°00'E			
	PS934 Vatulele N	PS936 Daveta	Suva	1910
	18°25'S, 177°35'E	18°12'S, 178°23.5'E	18°09'S, 178°26'E	
Route PS93B				
PS931 Jackson	PS933 Kune			
	22°52'S, 167°37'E			
	PS934 Vatulele N	PS936 Daveta	Suva	1752
PS931 Jackson	PS933 Kune			
	PS935 Kandavu	PS936 Daveta	Suva	1764
	19°06'S, 177°54'E			
Route PS93C				
PS931 Jackson	PS933 Kune	PS937 Navula	Lautoka	1718
		17°55'S, 177°10'E	17°36'S, 177°26'E	

The near certainty of encountering contrary winds on the great circle route rules out a direct passage to Fiji from any port in New South Wales. The recommended route (PS93A) stays south of latitude 32°S until longitude 170°E is crossed from where it gradually curves NE so that the islands are approached from the south. The initial course should stay slightly north of east, so as to pass well to the south of Minerva and Elizabeth Reefs and close to Norfolk Island. A stop at either Norfolk or Lord Howe Island can be convenient to await the easing of strong easterly winds. WP PS932 is only a guideline as the course that will actually be sailed will depend both on existing weather conditions and the windward performance of the boat in question. In fact, a boat that goes well to windward may be able to sail an almost direct course (PS93B). In such a case, the initial course should be set to pass close to the SE of New Caledonia, to WP PS933. From that point, SE of Kune Island, the direct route to Fiji passes close to a number of dangers south of Durand Reef. If such a direct course for Fiji cannot

be sailed on account of the wind, and easting has to be made on a more southerly route, several dangers will be passed closely. The first two islands, Matthew (22°21'S, 171°21'E) and Hunter (22°24'S, 172°05'E), are easily visible as they are quite high. Much more dangerous is the low reef Theva-i-Ra (21°44'S, 174°38'E), which should be given a wide berth.

Regardless of the route sailed, boats bound for Suva can make landfall at WP PS934, north of Vatulele Island from where the route continues to Suva through the Mbengga Channel, where strong contrary currents can be expected. If sufficient easting has been made to approach Suva from the south, landfall can be made at WP PS935, SW of Kandavu. The course can then be altered for WP PS936 so that Suva Harbour is entered through Daveta Passage. Arriving vessels must either tie to the quarantine buoy or anchor in this area and await clearance.

Boats bound for Lautoka (PS93C), on the west coast of Viti Levu, from WP PS933 should set course

for WP PS937, at the entrance into Navula Passage. From there the route crosses Nadi waters to Lautoka, an official port of entry into Fiji.

Because a passage to Fiji should be avoided during the cyclone season, the alternative to a direct passage is to sail first to New Zealand, which can

be done earlier in the year (see route PS91) and continue to Fiji in April. This detour has the prospect of better winds on the passage to New Zealand and a better slant through the SE trades on the subsequent leg to Fiji. See also route PS64 (page 331).

PS94 *New South Wales to Vanuatu*

BEST TIME:	April to June				
TROPICAL STORMS:	December to March				
CHARTS:	BA: 4602				
	US: 602				
PILOTS:	BA: 15, 61				
	US: 126, 127				
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
Route PS94A					
PS941 Jackson	PS942 Fairway				
33°50'S, 151°20'E	21°00'S, 162°30'E				
	PS943 Grand				
	19°00'S, 162°30'E				
	PS944	PS945 Efate SW	Vila		1436
	18°10'S, 164°30'E	17°46'S, 168°12'E	17°44'S, 168°18'E		
Route PS94B					
PS941 Jackson	PS946 Kune				
	22°52'S, 167°37'E				
	PS947 Maré	PS945 Efate SW	Vila		1398
	21°35'S, 168°10'E				

Because the islands of New Caledonia straddle most direct routes to Vanuatu, a stop in Noumea is included in most passage plans. This is probably the easier way to reach Vanuatu and directions for it are similar to those for route PS92.

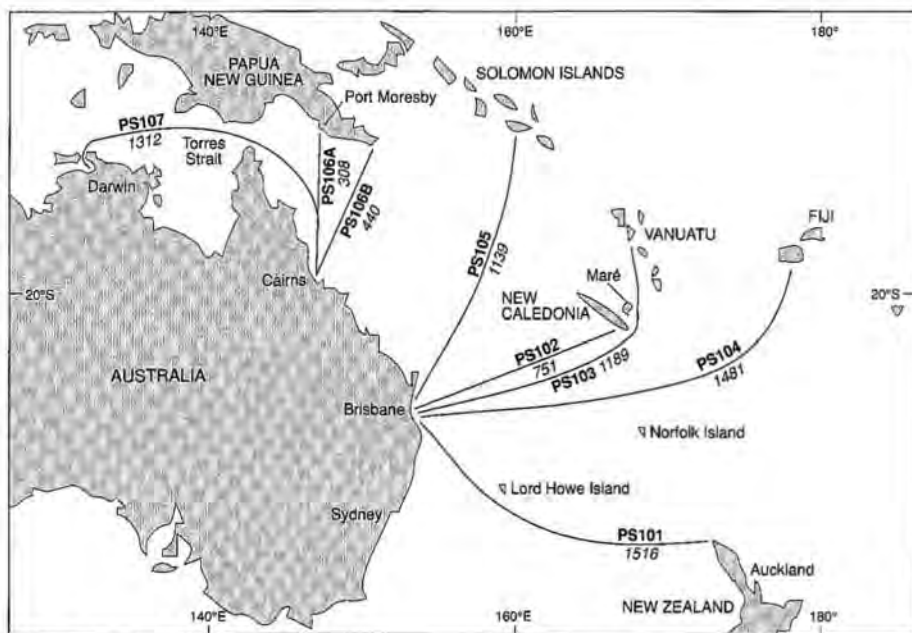
A direct route from Sydney (PS94A), which bypasses New Caledonia, leads west of Lord Howe Island, Elizabeth and Minerva Reefs. The route heads in the direction of New Caledonia to WP PS942 to pass clear of Fairway Reef and avoid the other dangers to the west of New Caledonia. The route then goes due north to WP PS943 and enters Grand Passage. This is sailed in a NE direction to WP PS944 before the course can be altered for Port Vila. Great caution is necessary when navigating west and north of New Caledonia where the positions of some reefs are doubtful and others have not been accurately charted. Approaching the island of

Efate from the west, landfall should be made at WP PS945, SW of Efate. The route then enters Mele Bay to reach Port Vila, the capital of Vanuatu. On arrival in Port Vila boats should tie up to the quarantine buoy and wait to be cleared in. Port Vila Radio should be contacted on VHF channel 16 to request that the relevant officials are informed.

Because of the near certainty of encountering strong easterly winds between Grand Passage and Efate, an alternative route (PS94B) may be considered which passes south of New Caledonia. In this case, the initial course leads to WP PS946, SE of Kune Island. From there, the course is altered to pass to windward of the Loyalty Islands to WP PS947, SE of Maré Island. From that point, the course can be altered for WP PS945, in the approaches to Port Vila.

PS100 ROUTES FROM QUEENSLAND

PS101	<i>Queensland to New Zealand</i>	355
PS102	<i>Queensland to New Caledonia</i>	355
PS103	<i>Queensland to Vanuatu</i>	356
PS104	<i>Queensland to Fiji</i>	357
PS105	<i>Queensland to Solomon Islands</i>	358
PS106	<i>Queensland to Papua New Guinea</i>	359
PS107	<i>North Queensland to Darwin</i>	360



PS100 Routes from Queensland

A tropical climate, the Great Barrier Reef, and almost unlimited cruising opportunities have turned Queensland into a favourite destination not only among foreign sailors but also Australian ones. The one major disadvantage are the tropical cyclones which affect both Queensland and the surrounding region, with the exception of Papua New Guinea north of approximately latitude 10°S. The critical period is December to the end of March when cruising should be kept to a minimum and one should always be within easy reach of a safe

harbour. From April onwards the weather is good, with strong and steady SE trade winds. In July and August particularly, the winds can be quite strong and so it is recommended that, especially in winter, the Queensland coast should be cruised from south to north.

Although the main routes are northbound and thus benefit from the prevailing winds, those who intend to sail east across the Coral Sea should plan to do so either before or after the onset of the SE trade winds which blow most consistently between

May and September. Usually in early April the trade winds are not yet fully established and east-bound passages are easier to accomplish. Passages after the end of October should be avoided because of the danger of early cyclones. The

period when these tropical storms occur in the Coral Sea should be treated with great suspicion as very few months are entirely free and cyclones have been recorded in both the transitional months of June and November.

PS101 Queensland to New Zealand

BEST TIME:	April to May, October to November			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 780 US: 602			
PILOTS:	BA: 15, 51 US: 127			
CRUISING GUIDES:	<i>Coastal Cruising Handbook of the Royal Arakana Yacht Club.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS1011 Stradbroke 27°25'S, 153°35'E	PS1012 Elizabeth 29°40'S, 159°00'E PS1013 Kings 34°20'S, 171°50'E PS1014 North Cape 34°20'S, 173°05'E		Opua 35°19'S, 174°07'E	1518

As a passage during the cyclone season is not recommended and one in the middle of winter has few attractions, the best time should be between those two seasons. In April or May, the danger of cyclones is acceptably low, the weather is not yet cold, and the SE trade winds have not reached their mid-winter strength. The passage can be just as pleasant at the end of winter, in late October or early November, when SW gales are also less frequent.

The route from ports north of Sandy Cape should pass well to the north of Middleton Reef. The direct

route from Brisbane takes its leave at PS1011, off Stradbroke Island. From there a course is set for WP PS1012, halfway between Middleton (29°28'S, 159°04'E) and Elizabeth Reef (29°55'S, 159°02'E), both of which have anchorages which have been used by yachts in settled weather. The route continues to WP PS1013, south of the Three Kings, a group of rocks off New Zealand's Cape Reinga. Having rounded North Cape, the nearest ports of entry are Opua, in the Bay of Islands, or Whangarei (35°44'S, 174°21'E).

PS102 Queensland to New Caledonia

BEST TIME:	April to May, mid-September to October			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602 US: 602			
PILOTS:	BA: 15, 61 US: 126, 127			
CRUISING GUIDES:	<i>Cruising in New Caledonia, Landfalls of Paradise.</i>			

ROUTES IN THE SOUTH PACIFIC

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS1021 Capricorn 22°50'S, 152°00'E	PS1022 Wreck 22°45'S, 155°00'E	PS1025 Dumbea 22°22'S, 166°14'E	Noumea 22°16'S, 166°26'E	802
PS1023 Curtis 24°15'S, 153°00'E	PS1024 Cato 23°55'S, 155°00'E	PS1025 Dumbea	Noumea	751

This can be a difficult passage at all times because of the certainty of encountering contrary winds for at least part of the voyage, if not the whole of it. It is therefore important to wait for a forecast for westerly winds, which at least will ensure a speedy start. Such winds are normally generated by fronts moving up from the south and the weather associated with them is rarely pleasant. Because of the high proportion of easterly winds in winter it is better to plan this passage for the intermediate season. Similarly, because of the risk of cyclones in the Coral Sea, this passage should not be undertaken after the middle of November or before the end of March.

A direct offshore route can be sailed from ports in South Queensland, but from ports north of

Sandy Cape, either Capricorn or Curtis Channels should be used to reach the open sea before laying a course for Dumbea Pass, at the SW extremity of New Caledonia. The route for boats leaving through Capricorn Channel goes to WP PS1022 halfway between Wreck and Cato Reefs. Boats leaving through Curtis Channel should stay south of Cato Reef by setting course for WP PS1024. The routes converge at WP PS1025 outside Dumbea Pass. This leads into Noumea, New Caledonia's capital and only port of entry. Approaches into Noumea are difficult at night and should not be attempted. Arriving boats should contact Port Moselle on channel 67 to arrange a berth at the visitor's dock. The marina will contact customs and immigration for clearance.

PS103 Queensland to Vanuatu

BEST TIME:	April to May, mid-September to October			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602 US: 602			
PILOTS:	BA: 15, 61 US: 126, 127			
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS1031 Capricorn 22°50'S, 152°00'E	PS1032 Wreck 22°45'S, 155°00'E PS1033 23°10'S, 166°50'E PS1034 Kune 22°52'S, 167°37'E PS1035 Maré 21°35'S, 168°10'E	PS1036 Efate SW 17°46'S, 168°12'E	Port Vila 17°44'S, 168°18'E	1189

Prevailing easterly winds, contrary currents, and the many dangers dotted about the southern part of the Coral Sea make this one of the most diffi-

cult routes in the South Pacific. Direct passages from ports in Northern Queensland should not even be considered and an alternative route cho-

sen to reach the islands of Vanuatu without having to fight the elements all the way. The best tactic is to make a detour to the south, inside the Great Barrier Reef. Having reached the open sea via the Capricorn Channel, the route joins route PS94, a nonstop passage to Vanuatu is intended.

An easier alternative is to join route PS102 and follow directions as far as Noumea from where Vanuatu can be reached via the islands spread out among the two groups. Such an approach has certain attractions as it avoids the dangerous reefs to the west of New Caledonia and offers the possibility of breaking up the voyage in some of the islands of New Caledonia or Southern Vanuatu, if the winds prove too much to cope with.

The suggested direct route takes its leave from Australia through the Capricorn Channel, from where a course is set to pass south of the various reefs and round the island of New Caledonia from

the south. From a point SE of Kune Island (WP PS1034), the course is altered to pass to windward of the Loyalty Islands to WP PS1035, SE of Maré Island. From that point, the course can be altered for WP PS1036, SW of Efate, in the approaches to Port Vila. The route then enters Mele Bay to reach Port Vila, the capital of Vanuatu. On arrival in Port Vila, boats should tie up to the quarantine buoy and wait to be inspected by a health officer. Port Vila Radio should be contacted on VHF channel 16 to request that the relevant officials are informed.

Another alternative is to take a route which goes through Grand Passage, north of New Caledonia, as described in route PS94. On that route, a better wind angle may make it possible to stay on the starboard tack NE of Grand Passage and sail to Espiritu Santo Island, where it is possible to clear into Vanuatu at Luganville (15°31'S, 167°10'E).

PS104 Queensland to Fiji

BEST TIME:	April to June			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 4602			
	US: 602			
PILOTS:	BA: 15, 61			
	US: 126, 127			
CRUISING GUIDES:	<i>Yachtsman's Fiji, Landfalls of Paradise</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS104A				
PS1041 Stradbroke 27°25'S, 153°35'E	PS1042 Norfolk S 30°00'S, 168°00'E	PS1045 Navula 17°55'S, 177°10'E	Lautoka 17°36'S, 177°26'E	1681
Route PS104B				
PS1041 Stradbroke	PS1043 23°10'S, 166°50'E	PS1045 Navula	Lautoka	1447
	PS1044 Kune 22°52'S, 167°37'E			
PS1041 Stradbroke	PS1043 PS1044 Kune	PS1047 Daveta	Suva	1481
	PS1046 Vatulele N 18°25'S, 177°35'E	18°12'S, 178°23.5'E	18°09'S, 178°26'E	

Because of both contrary winds and current sailing a direct route from Queensland to Fiji would be a very difficult undertaking. The most feasible way to reach Fiji is by a detour to the south where better winds might be found to make the required easting (route PS104A). Although the recom-

mended tactic is to sail south of latitude 32°S, where the chances of finding favourable winds are higher, a slightly more northerly route can be taken should the winds permit this. Ideally one should wait for a forecast of westerly winds before leaving. Even with favourable winds, the route should

remain south of the latitude of Norfolk Island until past that island. If consistent headwinds are met while in the vicinity of Norfolk, a stop can be made there. The anchorage at Kingston (29°01'S, 167°59'E) is not considered safe and should be left if the weather threatens to deteriorate.

Preferably one of the ports in South Queensland should be taken as a departure port. From WP PS1041, off Stradbroke Island, the initial course goes to WP PS1042, south of Norfolk Island. From there, the course should start curving NE. If a direct course can be sailed from WP PS1042 to Fiji, attention must be paid to Theva-i-ra Reef, also known as Conway Reef (21°44'S, 174°38'E), which will be passed closely. Having made landfall off Navula Passage, at WP PS1045, that pass will be taken through the reef into Nadi Waters and on to Lautoka to complete entry formalities into Fiji.

Depending on weather conditions and the windward performance of the boat in question, a

more direct route (PS104B) passing close to New Caledonia may be sailed. Although shorter, such a route may not be necessarily easier as there is a higher chance of encountering contrary winds on the subsequent leg between New Caledonia and Fiji. From WP PS1041, an initial course will be sailed to WPs PS1043 and PS1044, SE of the main island of New Caledonia. From there, the route passes close to a number of dangers south of Durand Reef, before a course can be set for WP PS1045, if the intention is to make for Lautoka. The alternative, if the necessary easting can be made, is to head for Suva, in which case landfall should be made at WP PS1046, north of Vatulele Island. From that point, the Fijian capital will be reached through Beqa Channel, separating the island of that name from Viti Levu. Daveta Passage leads into Suva Harbour where arriving boats should go to the quarantine anchorage and wait to be cleared.

PS105 *Queensland to Solomon Islands*

BEST TIME:	April to October			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 780			
	US: 622			
PILOTS:	BA: 15, 60			
	US: 126, 127			
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS1051 Moreton NW 26°50'S, 153°20'E	PS1053 Saumarez 21°20'S, 155°00'E			
	PS1054 Mellish 17°30'S, 156°45'E	PS1055 Guadalcanal 9°18'S, 159°30'E	Honiara 9°25'S, 159°58'E	1139
PS1052 Capricorn 22°50'S, 152°00'E	PS1053 Saumarez PS1054 Mellish	PS1055 Guadalcanal	Honiara	986

Although this passage can be made at any time outside of the cyclone season, the months of July and August ought also to be avoided as it is the time when the SE trade winds attain their peak and sailing conditions can be quite rough. Because of the numerous reefs that have to be avoided in the Coral Sea, there are various routes that leave from the Australian coast. Boats leaving from Brisbane should set a course for WP PS1053 to pass safely between Wreck and Saumarez Reefs. The route then passes between Kenn and Frederick Reefs to reach

WP PS1054, east of Mellish Reef.

Boats which have reached the open seas through Capricorn Channel from WP PS1052 should set a course for the same waypoint PS1053. The course can then be altered for WP PS1054 to pass east of Mellish Reef. From there a clear route leads to WP PS1055, off the NW tip of Guadalcanal. The capital Honiara is on the west side of the same island. Boats should proceed to the anchorage off Point Cruz Yacht Club and contact Honiara Radio on VHF channel 16 and request clearance.

PS106 Queensland to Papua New Guinea

BEST TIME:	April to October			
TROPICAL STORMS:	December to March			
CHARTS:	BA: 780 US: 623			
PILOTS:	BA: 15, 60 US: 127, 164			
CRUISING GUIDES:	<i>Landfalls of Paradise.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route PS106A				
PS1061 One Half 14°20'S, 145°30'E		PS1062 Basilisk SW 9°33'S, 147°05'E	Port Moresby 9°28'S, 147°09'E	308
Route PS106B				
PS1063 Grafton 16°35'S, 146°25'E	PS1064 Bougainville 15°30'S, 147°30'E	PS1065 Brumer 10°52'S, 150°15'E	Samarai 10°36'S, 150°39'E	440

There are two main routes crossing the Coral Sea from Queensland to Papua New Guinea, one that goes direct to the capital Port Moresby (PS106A), the other to Samarai (PS106B), a small island off the SE extremity of New Guinea. The latter route is taken by those who wish to cruise in the outer islands before heading for Port Moresby and beyond. Because Port Moresby is downwind of all other possible destinations, it is a mistake to go there first as it can be very tough sailing against the boisterous SE trades to reach the smaller islands east of New Guinea. If the destination is one of those islands, Samarai provides a most convenient port of entry.

For the direct passage to Port Moresby from ports in North Queensland it is better to stay inside the Great Barrier Reef until almost due south of Port Moresby. Cairns is the last port in Queensland where exit formalities can be completed and although boats are allowed to day sail inside the Great Barrier Reef after having cleared out of Australia, landing either along the coast or on one of the offlying islands is prohibited.

From Cairns, one has the choice of either taking the inshore route as far as Lizard Island and reaching the open sea through the One and a Half Mile Opening, or going outside the Great Barrier Reef through Grafton or Trinity Passage. In good light the latter can be easily negotiated and is more convenient than Grafton.

The course from the One and a Half Mile Opening (14°25'S, 145°26'E) is free of any dangers

all the way to Port Moresby. From WP PS1061 outside of that passage a course can be set for WP PS1062 at the entrance into Basilisk Pass, which leads into Port Moresby. Boats should proceed to the Royal Papua Yacht Club where visiting yachts sometimes find docking space. The captain should then visit the various offices to complete the formalities.

The alternative route to Samarai can leave the Great Barrier Reef by a multitude of passes, Grafton Passage just outside Cairns being one of the best. Because of the direction of the prevailing winds, the more northerly the starting point of this passage, the closer it will be to the wind. As winter passages across the Coral Sea can be quite rough, this is an aspect that should be considered when planning this route. The strong winds coupled with the west-setting current make it necessary to do some easting whenever the winds permit this.

Having left Cairns and gained the open sea through Grafton Passage, from WP PS1063, outside that passage, an initial course is set for WP PS1064, east of Bougainville Island. The route then crosses the Coral Sea to make landfall at WP PS1065, SW of Brumer Island, off the Papuan coast. Sufficient time should be allowed to be able to cover the remaining 30 miles to Samarai in daylight, where entry formalities into Papua New Guinea can be completed. If there is not enough time to reach Samarai in daylight, it is safer to anchor off the mainland coast for the night. A good anchorage can be found behind Deirina Island, close to the Strait.

PS107 North Queensland to Darwin

BEST TIME:	May to September			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 4603 US: 603			
PILOTS:	BA: 15, 17 US: 127, 175			
CRUISING GUIDES:	<i>Cruising the Coral Coast, Northern Territory Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PS1071 One Half 14°20'S, 145°30'E	PS1072 Ashmore 10°00'S, 145°08'E			
	PS1073 9°23'S, 145°00'E			
	PS1074 Bligh 9°15'S, 144°00'E			
	PS1075 Thursday 10°34'S, 142°06.5'E			
	PS1076 Arafura 10°30'S, 132°20'E			
	PS1077 Bathurst 11°10'S, 130°00'E		Darwin 12°30'S, 130°51'E	1312

There are two alternatives to reach Australia's Northern Territory from its east coast, either by an inshore route that keeps close to the coast and stays inside the Great Barrier Reef or an offshore route that goes through the Torres Strait using the main shipping channels. The inside route is well buoyed, so it can be done nonstop and night sailing, although difficult, is not impossible. However, most yachts sail this route in day hops as there are plenty of anchorages or small ports in which to stop for the night. Having passed the top of Australia at Cape York, the Sea of Arafura is reached through the intricate Endeavour Strait.

Those who wish to sail offshore will have to use one of the passes through the Great Barrier Reef to reach the open sea. The safest, but also longest, way through the Torres Strait is through the main shipping channel, which is well lit and buoyed. To join this channel, from WP PS1071 outside the One and a Half Mile Opening north of Lizard Island the route leads almost due north to WP PS1072 passing halfway between Eastern Fields and Ashmore

Reef. Maintaining a northerly heading to WP PS1073, the course is then altered for WP PS1074, SE of Bramble Cay in Bligh Entrance, the gateway into Torres Strait. From there, the main shipping channel should be followed to reach the Arafura Sea. The well marked channel runs in a SW direction for 130 miles to the Prince of Wales Channel. From there, the rest of the route to Darwin is the same as that for boats having taken the inshore route. From PS1075, west of Thursday Island, a westerly course leads clear of all dangers to WP PS1076. From there the course can be altered to pass through Dundas and Clarence Straits, although the longer route around both Melville and Bathurst Islands is recommended. From WP PS1077, NW of Bathurst Island, a southerly course leads past Cape Fourcroy in the approaches to Darwin, from where a buoyed channel leads into the harbour. Arriving boats should contact Darwin Port Authority on VHF channel 16 or HF 2182 kHz and proceed to Fisherman's Wharf for clearance.

14

WINDS AND CURRENTS OF THE NORTH INDIAN OCEAN

The winds and weather of the entire Indian Ocean are dominated by the monsoons, which although affecting primarily the northern half of the ocean also have a bearing on the weather pattern of the tropical South Indian Ocean. The NE monsoon prevails when the sun has a southern declination and the SW monsoon when the sun's declination is north.

Northeast monsoon

A predominantly NE wind blows during the winter months in the North Indian Ocean, Bay of Bengal, and the Arabian Sea. The wind is very steady and constant over most parts of the North Indian Ocean, blowing with an average 10–15 knots, its strength diminishing towards the equator. On rare occasions the monsoon can reach gale force, but for most of the time sailing conditions can be described as near perfect as possible. There are two areas in which the monsoon is less reliable and the winds more variable. In the Arabian Sea, north of latitude 20°N, the weather pattern is sometimes affected by the passage of depressions to the north of the area. The other area lies to the SE of Sri Lanka, between latitude 5°N and the equator, where winds are less constant in strength and direction, the normal direction of the wind being northerly. Further east, in the Malacca Strait, the monsoon is also less pronounced than elsewhere.

The NE monsoon lasts from November to March, beginning earlier in the northern part of the region where it is well established by the middle of November. Towards the equator it does not

arrive in full strength until December. The winter monsoon is preceded and followed by a transitional period as it is replaced by the SW monsoon and vice versa. This transitional period coincides with the movement across the region of the Intertropical Convergence Zone which separates the air masses of the northern and southern hemispheres. The ITCZ is most active in April–May and October–November, which are also the months when most cyclonic storms occur over the North Indian Ocean. During this transitional period the weather is often squally and the winds can reach gale force in these squalls. Otherwise this period can be compared to the doldrums of other oceans, with light winds and calms, which are gradually replaced by the coming monsoon. This doldrum belt is not so distinctly defined as in the Atlantic and Pacific Oceans.

Southwest monsoon

The heating of the Asian land mass during the summer months creates a large area of low pressure over the NW part of the Indian subcontinent. This causes the SE trade wind of the South Indian Ocean to be drawn across the equator where it joins the general movement of air that flows in an anticlockwise direction around the area of low pressure lying over India. This is the SW monsoon which is felt from June to September in the same areas as its NE counterpart. The SW monsoon is a consistent wind blowing at an average 20 knots for long periods and frequently reaching gale force. An area lying about 200 miles to the east of Socotra Island

WINDS AND CURRENTS OF THE NORTH INDIAN OCEAN

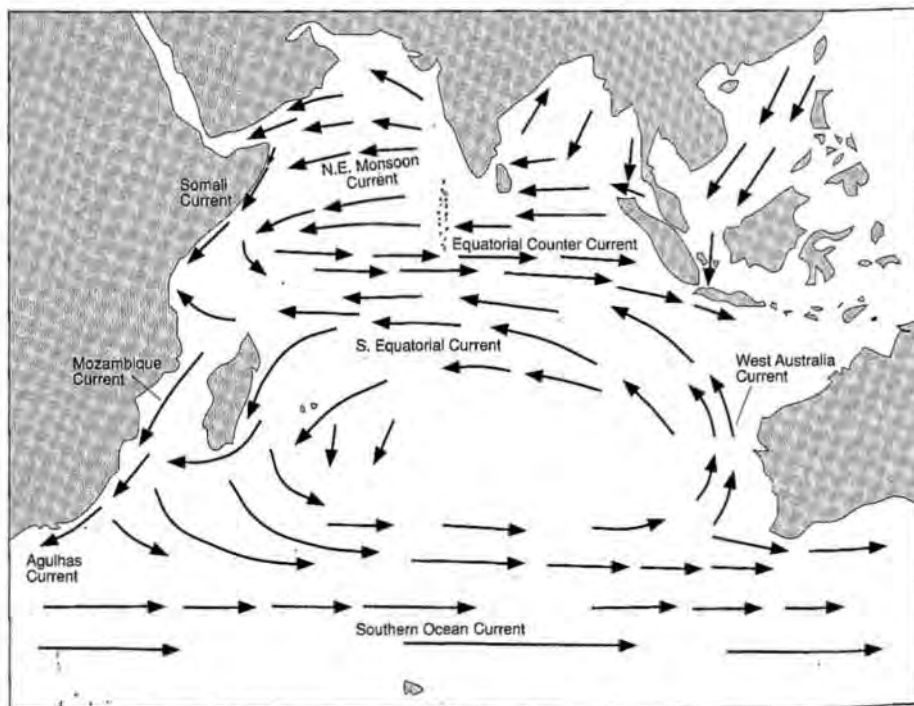
is reputed to be the windiest spot in the Indian Ocean with a frequency of gales in July similar to that of Cape Horn in summer! The winds diminish gradually in strength during August, and by September both the strength of the wind and its direction become less constant. In October and November, the winds are often light until the arrival of the NE monsoon. The weather during the SW monsoon is overcast and often unsettled with heavy rainfall.

Tropical Storms

Tropical storms or cyclones occur in the Arabian Sea and the Bay of Bengal. The two periods of the year when their frequency reaches a maximum coincide with the transitional period between the two monsoons. The first period of cyclonic activity is at the beginning of the SW monsoon from late

May to the middle of June. The second period coincides with the onset of the NE monsoon and lasts from the end of October to the second half of November. Most of these storms form in the vicinity of the ITCZ when it is situated between latitudes 5°N and 15°N.

Most of the storms that occur in May and June are bred in the Arabian Sea from where they move either in a NW and W direction, or in a N direction recurving towards the NE and the coast. Some of the cyclones that form in October and November in the Bay of Bengal move westward across South India into the Arabian Sea. Both in the Arabian Sea and Bay of Bengal, October has the highest frequency of cyclones. Their frequency decreases in November and they are rare in December and January, none having been recorded in February and March. After the middle of April the likelihood of a cyclone begins to increase.



Indian Ocean currents - NE monsoon

Currents

The currents of the North Indian Ocean follow a seasonal pattern because of the monsoons and reverse their direction under their influence. The Northeast Monsoon Current occurs during the NE monsoon and reaches its peak in February. It is located between the equator and latitude 6°N and has a westward set. Its counterpart is the Southwest Monsoon Current which occurs from May to September and can be considered to be a continuation of the Somali Current. This current can attain very high rates, especially off the coast of Somalia and in the vicinity of Socotra, where some of the strongest sets in the world have been recorded, with rates of up to 7 knots. Although the initial set is NE, the current becomes east in the open waters of the Arabian Sea until it reaches the landmass of India and turns SE.

At the time of the NE monsoon, the Somali Current flows SW along the African coast as far as

the equator where it meets the north flowing East Africa Coast Current. In December and January, the current turns east and becomes the Equatorial Countercurrent.

The Equatorial Countercurrent is the only current of the North Indian Ocean which does not reverse its direction as a result of the monsoons. However, its strength is reinforced during the transitional periods between the two monsoons in April–May and October–November. It sets east throughout the year and lies to the north of the west-setting Equatorial Current. The Equatorial Countercurrent reaches its southern limit in February, at the height of the NE monsoon, when it sometimes flows very close to the Northeast Monsoon Current. This means that by moving slightly to the north or south, it is possible to shift from a west-setting to an east-setting current. The southern limit of the Countercurrent is always south of the equator, regardless of season.

15

ROUTES IN THE NORTH INDIAN OCEAN

Compared to the other two great oceans of the world, the Indian Ocean is crisscrossed by a relatively small number of cruising routes. One reason for this is the smaller number of sailing boats that spend any length of time cruising as opposed to crossing this ocean as part of a world voyage. The routes are governed by the predictability of the weather, the seasons being much better defined than anywhere else. The regularity of the monsoons was recognised by early navigators who knew how to take full advantage of the seasonal wind patterns. Because of this regularity it is very easy to plan a voyage well in advance so as to make a particular passage at the optimum time. This applies both to the northern half of the ocean, which is dominated by the NE and SW monsoons, and to its southern half which is under the influence of the SE trade winds.

There are two major routes crossing the Indian Ocean, both of which start from the Torres Strait. For those who wish to cruise in the Mediterranean or intend to reach southern Europe by the shortest route, the logical way leads through the North Indian Ocean and Red Sea. For those who wish to reach the Atlantic by way of the Cape of Good Hope, the direct route leads across the South Indian Ocean to South Africa.

Most other routes in the Indian Ocean are variations of the above two. For boats sailing in the North Indian Ocean, the harbour of Galle in Sri Lanka continues to be a popular port of call which does not seem to have been affected by political troubles in that country. Most boats arrive in Galle from Thailand or Malaysia. They are mostly bound for the Red Sea and have waited in SE Asia to make the crossing of the North Indian Ocean at the optimum time.

In spite of India's many attractions, most cruising boats continue to bypass this great country,

mostly because of the complicated and lengthy formalities to which visiting yachts are submitted by Indian officials. For similar reasons, few boats venture into any of the Gulf states.

The favourable season for a passage across the North Indian Ocean is during the NE monsoon, when almost perfect sailing conditions can be expected. Although this season lasts from December to March, passages made in January and February have the advantage that the Mediterranean is reached after the coldest weather is over and the cruising season is beginning.

The Bay of Bengal has typical monsoon weather. The NE monsoon begins in October in northern areas and is established only in November further south. It blows steadily with fine dry weather until April, when the weather becomes hot, still, and oppressive. The SW monsoon only establishes itself around the middle of June, but quickly becomes strong, around 20-25 knots and blows steadily until August when it starts to decrease, disappearing in October. Cyclones are more numerous in the Bay of Bengal than in any other area of the Indian Ocean, although they are sometimes shorter and less severe. They can occur from April through to December, but are most frequent in July and October at the change of monsoons.

Weather conditions are very similar in the Arabian Sea and it is the seasonal winds of this sea which gave rise to the word 'monsoon' meaning season. As in other parts of the North Indian Ocean, the NE monsoon has the better weather. The wet season coincides with the SW monsoon, which commences in May in the south and spreads over the whole area by June. There is usually squally weather at the monsoon changeover. On the Indian coast the SW monsoon arrives with a sudden burst of wind from the east, heavy rain and thunder for several hours before the SW winds take

over. This burst of the monsoon is preceded by a week of vivid lightning which disappears every day when the sun sets. The SW winds in the Arabian Sea are very strong and can blow at 30 knots for several days. There is a very high frequency of gale force winds especially near the island of Socotra during the month of July. In September the winds start weakening and the monsoon breaks up and disappears by October.

Cyclones occur at two periods of the year which coincide with the monsoon changeover. April to July is one period, with the highest frequency in June, while October has the highest frequency in the other period, although cyclones can occur from September through until December. Most cyclones curve NW to strike the shores of the Arabian Peninsula or else tend to recurve to the NE towards India and Pakistan.

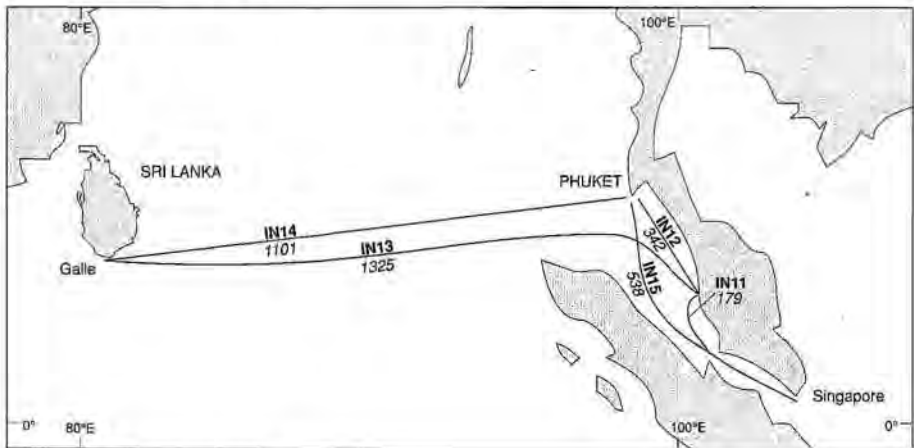
The NE monsoon lasts from October to April, although the winds are diverted to blow more easterly into the Gulf of Aden, blowing SE or S through the Bab el Mandeb Strait into the Red Sea. From

June until August the SW monsoon takes over, blowing strongest in July with frequent winds around 30 knots. During the SW monsoon, a strong local land breeze called the *kharif* blows for up to 30 miles off the African coast. Reinforcing the SW wind, it can reach gale force during the night and is very dry, full of dust and sand off Africa. In a similar fashion a strong N or NW wind called the *belat* blows off the Arabian coast from December to March. Again it starts at night, is full of dust and sand, and can reach 30 knots in some coastal areas. There is sometimes poor visibility due to haze or mist, especially along the Arabian coast during the SW monsoon. Very rarely cyclones stray with little warning from the Arabian Sea into the Gulf of Aden. The dangerous months are June and October.

Note: Navigators are warned that the position of the Maldiv Islands do not agree with current GPS observations and therefore the islands should be approached with utmost care. It is stressed that any waypoints are only given as guidelines and should not be relied upon when making landfall.

IN10 ROUTES FROM SOUTHEAST ASIA

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IN10 Routes from Southeast Asia

ROUTES IN THE NORTH INDIAN OCEAN

The main cruising route leads from Singapore through the Malacca Strait into the Bay of Bengal. It is used mostly by boats on a world voyage from the South Pacific to the North Indian Ocean and the Red Sea. They are joined in Singapore by boats coming from the countries of the Far East, mostly from Hong Kong and the Philippines. The number of boats sailing through Southeast Asia in the opposite direction is much smaller. Pacific routes from Singapore are described on page 225.

Being so close to the equator, Singapore has a hot and humid climate, which varies little throughout the year. Calms and light winds occur throughout the year. The NE monsoon begins in November, although the NE winds are deflected and appear at the beginning of this period as a NW monsoon. By January NE winds are established but they do not blow as strongly or as steadily as over the South China Sea. From April onwards the SE trade winds penetrate from south of the equator, the winds often having a southerly component. Between April and November the area is affected by *sumatras*, thundery storms with strong winds, which blow across from Sumatra and last for several hours.

Although within the monsoon areas of the Indian Ocean, the weather in the Malacca Strait is highly influenced by local conditions, and variable winds with regular land and sea breezes occur at all times of the year. The SW monsoon is blocked by the high island of Sumatra, while the Malaysian peninsula does the same to the NE monsoon. January to March normally has the best weather, fewer

squalls, and less rain as the NE monsoon penetrates into the area. Even in this season it is possible to get NW or W winds for some days. March and April are variable and the SW monsoon starts early in May, being strongest in July and August. The SW winds are strongest in the northern portions of the Malacca Strait, variable from SE to SW with calms in the centre and more SE in southern areas towards Singapore.

Sea and land breezes occur on both shores of the Malacca Strait and up to 20 miles offshore. The sea breeze begins about mid-morning and reaches a maximum in the afternoon, dying away at sunset. The strength of the breeze can be augmented to 20 knots if it combines with the prevailing monsoon or can remain light and variable if the monsoon opposes the breeze. Conditions vary greatly from place to place. On the Malaysian coast the night land breeze can be very strong, starting in the evening and sometimes blowing hard all night. Further up the coast towards Thailand, the SW monsoon blows more steadily and strongly than in the Malacca Strait, lacking the shielding effect of the large island of Sumatra. SW winds dominate from May to September with their maximum steadiness in July and August. On the other hand the high landmass of Thailand shelters this coast from the NE monsoon, which tends to have a more northerly component than elsewhere. Very rarely, about once every fifty years, tropical storms come across from the Bay of Bengal and reach the Gulf of Siam.

IN11 Singapore to Western Malaysia

BEST TIME:	October to November, April			
TROPICAL STORMS:	None			
CHARTS:	BA: 1355 US: 707			
PILOTS:	BA: 21, 44 US: 174			
CRUISING GUIDES:	<i>Phuket and Malacca Straits Guide</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IN11A				
IN111 Channe W 1°14'N, 103°30'E	IN112 Muar 1°57'N, 102°30'E			
	IN113 Panjang N 2°09'N, 102°15'E	IN114 Klang S 2°50'N, 101°15'E	Port Klang 3°00'N, 101°23'E	179

Departure	Intermediate	Landfall	Destination	Distance (M)
Route IN11B				
IN115 Klang N	IN116 Sembilan			
3°20'N, 101°00'E	4°00'N, 100°27'E			
	IN117 Penang S	IN118 Langkawi S	Bass Harbour	198
	5°09'N, 100°10'E	6°08'N, 99°45'E	6°18'N, 99°50'E	

Although a passage through Malacca Strait can be undertaken throughout the year, the most settled weather is during the NE monsoon, when the frequency of squalls is much lower than during the opposite season. The notorious *sumatras* are more frequent during the SW monsoon, and because they are accompanied by heavy rain and gale force winds they can make navigation difficult, the situation being also complicated by the large amount of shipping.

Another feature of navigation in Malacca Strait are the strong tidal currents which, combined with the normally light winds, make it more convenient to anchor between tides than to try and sail against the current. This can be easily done as there are anchoring depths all along the sides of the strait and there are sufficient protected places where one can stop for a few hours. The Malaysian side is preferable if this passage is done in shorter stages. Light winds and calms are more frequent during the day, so it is better to sail at night when breezes are steadier and the weather is generally more pleasant. One hazard, however, that is almost impossible to avoid at night are the numerous fish traps that line the two sides of the strait, so it is a good idea to keep out of shallow water during the hours of darkness.

Very few, if any, voyages along the west coast of Malaysia are made without stopping and for this reason this route has been divided into two, with a break at Port Klang where most northbound boats usually interrupt their journey. There are several ports between Malacca and Penang that can be visited by northbound boats from Singapore. Entry formalities for Malaysia can be completed at Malacca, where it is possible to come alongside other boats moored on the banks of the river. Taking WP IN111, at the entrance into the Malacca

Strait, as a point of departure, the route runs parallel to the Malaysian coast to WP IN112. A first stop can be made at Muar (2°02'N, 102°34'E), which is an official port of entry into Malaysia. Alternatively, one may continue to WP IN113, off Panjang Island, in the approaches to Malacca (2°15'N, 102°35'E). WP IN114 brings one to the south entrance to the channel leading into Port Klang, Malaysia's main port serving the capital Kuala Lumpur. South Klang Strait leads into the port, where the Royal Selangor Yacht Club is located on its eastern side (3°00.3'N, 101°23.5'E). Visiting boats may use the facilities of the yacht club, whose office will also assist with the clearance formalities.

Northbound boats will leave the port through North Klang Strait and pick up the offshore route at WP IN115. The route continues parallel to the Malaysian coast to WP IN116 west of the Sembilan Islands. Ten miles further north, the island of Pangkor hides the entrance into Dindings river and the small town of Lumut. If a stop in Penang is not intended, the route continues offshore that island. Otherwise, WP IN117 marks the entrance into South Channel, which leads to the narrows separating Penang from the mainland. Access under the bridge joining Penang to the mainland is prohibited without written permission, so if one does not have such permission, one should either anchor south of the bridge or use North Channel. To clear into Malaysia at Penang, one has to visit customs in Georgetown, whereas the immigration office is in Butterworth on the mainland. For most northbound boats, the last stop in Malaysia is the island of Langkawi, whose main attraction is that it is a duty-free area. WP IN118 is off Tyson Strait leading into the perfectly protected Bass Harbour.

IN12 Western Malaysia to Thailand

BEST TIME:	October to November, April			
TROPICAL STORMS:	None			
CHARTS:	BA: 4707 US: 707			
PILOTS:	BA: 21, 44 US: 173, 174			
CRUISING GUIDES:	Sail Thailand, Phuket and Malacca Straits Guide.			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IN121 Penang N 5°30'N, 100°15'E	IN122 Langkawi SW 6°08'N, 99°45'E		Bass Harbour 6°18'N, 99°50'E	54
IN121 Penang N	IN123 Langkawi W 6°15'N, 99°40'E			
	IN124 Butang 6°34'N, 99°24'E	IN125 Phuket S 7°47'N, 98°25'E	Ao Chalong 7°49'N, 98°21.5'E	180

The best season for this route is during the NE monsoon, when the weather is most settled, although winds for this northbound passage are not always favourable. The main cruising attraction on Thailand's west coast is the island of Phuket and the surrounding area.

Boats leaving from Georgetown, Penang's main town and harbour, should use North Channel to reach the open sea. As most northbound boats stop in Langkawi on their way to Thailand, from Penang and WP IN121 the course leads to WP IN122 off Tyson Strait, which opens into Bass Harbour. Whether stopping in Langkawi or continuing

directly to Phuket, from WP IN123, west of Langkawi, a course can be set for WP IN124, halfway between Besi and Tenga islands in the Butang group, which belong to Thailand. From there the route continues in a NW direction past several offlying islets and rocks to WP IN125, off Ao Chalong and Phuket harbour. Boats can anchor in the well protected bay at Ao Chalong, from where the captain has to make his own way into Phuket Town to complete entry formalities. Alternatively one can continue north for another five miles into Ban Nit Marina, which is reached via a one mile long channel.

IN13 Western Malaysia to Sri Lanka

BEST TIME:	January to March			
TROPICAL STORMS:	May to June, October to November			
CHARTS:	BA: 4707 US: 707			
PILOTS:	BA: 38, 44 US: 170, 173, 174			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IN13A IN131 Penang N 5°30'N, 100°15'E	IN133 Rondo 6°15'N, 95°10'E			
	IN134 Dondra 5°50'N, 80°35'E	IN135 Galle E 5°59'N, 80°15'E	Magalle 6°01.9'N, 80°13.7'E	1210

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IN13B IN132 Langkawi SW 6°10'N, 99°45'E	IN133 Rondo IN134 Dondra	IN135 Galle E	Magalle	1177

The best passages along this route are made between January and March, when the NE monsoon blows consistently over the North Indian Ocean. The passage should not be undertaken too early before the monsoon has had time to establish itself, as steady winds can rarely be relied upon before the middle of December. A start from Singapore or Malaysia in early January has the best chance of excellent winds both on the leg to Sri Lanka and on to the Red Sea. Much less favourable conditions will be encountered during the transitional period, in April and October–November, when westerly winds are quite common and there is a high risk of cyclones in the Bay of Bengal.

This passage is not recommended during the SW monsoon, both on account of the contrary winds and the danger of cyclones in the Bay of Bengal. Although boats have tried to reach Sri Lanka during the SW monsoon by sailing on a southerly course after passing the northern extremity of Sumatra, in the hope of making their westing south of the equator, this is an extremely difficult passage and should be avoided if at all possible. A more logical alternative is to reach the Indian Ocean from Singapore via Sunda Strait and then follow directions as for route IT12 (page 384).

During the NE monsoon boats leaving from ports in the south of the Malacca Strait or even Singapore should sail on the Malaysian side until the north of Sumatra can be fetched on the starboard tack. There are two convenient ports from which boats

normally set off on this passage, both of them being located on islands off the Malaysian coast. Boats leaving from Penang (route IN13A) will reach the open sea through North Channel and take their departure from WP IN131. Another popular departure point is Langkawi (route IN13B), in which case the passage will start from WP IN132, in Tyson Strait. The direct route to the southern tip of Sri Lanka passes between Rondo and Great Nicobar Island. From either of those departure points a course should be set for WP IN133. It is normally possible to call at Sabang, a small port on the island of Wé (5°53'N, 95°19'E), off the northern coast of Sumatra, where yachts have been allowed to stop briefly even if they were not in the possession of an Indonesian cruising permit. Having passed Sumatra, from WP IN133 the course is altered for WP IN134, off Dondra Head, the southern tip of Sri Lanka. The island's south coast is then followed to Galle, which is entered through the Eastern Channel. The town of Galle is on the west side of the large bay, whereas the small port is in the NE corner of the bay in a part of the town called Magalle. The entrance into the port is difficult to find in the dark, so arrivals should be either timed for daylight or one can anchor for the night in the NE corner of the bay and enter the port the following morning. The services of a local agent are required to complete the necessary formalities and such an agent will normally visit the boat soon after arrival.

IN14 Thailand to Sri Lanka

BEST TIME:	January to March
TROPICAL STORMS:	May to November
CHARTS:	BA: 4707 US: 707
PILOTS:	BA: 21, 38 US: 170, 173

ROUTES IN THE NORTH INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IN14A				
IN141 Phuket SW 7°44'N, 98°19'E	IN142 Nicobar 6°30'N, 93°50'E			
	IN144 Dondra 5°50'N, 80°35'E	IN145 Galle E 5°59'N, 80°15'E	Magalle 6°01.9'N, 80°13.7'E	1101
Route IN14B				
IN141 Phuket SW	IN143 Sombrero 7°38'N, 93°35'E			
	IN144 Dondra	IN145 Galle E	Magalle	1096

At the height of the NE monsoon, between January and March, the winds along this route can be perfect and some of the most pleasant passages have been experienced on this route. Directions are very similar to those given for route IN13.

Taking one's departure from Phuket at WP IN141, east of Ko Keonoi, there is a choice of routes to pass either to one side or the other of the Nicobar Islands. WP IN142, south of Great Nicobar, offers the easier option and is the recommended route (IN14A). The alternative (IN14B) is to set course for WP IN143, north of Little Nicobar, and pass through Sombrero Channel. The disadvantage of the latter is that there will be more dangers to avoid and also more small boat traffic, especially at night.

The Nicobars belong to India and cruising boats have not been allowed to stop there in the past.

Having passed the Nicobars, the course can be altered for WP IN144, off Dondra Head, the southern tip of Sri Lanka. From there, the route runs parallel to the island's south coast to Galle Harbour, which is entered through Eastern Channel. Approaching Galle from the east, especially at night, Goda Gala rocks, SE of the harbour, should be given a wide berth and the bay approached from the south. The town of Galle is on the west side of the large bay, whereas the small port is in the NE corner of the bay in Magalle. Boats are normally met by an agent whose services are needed to complete entry formalities.

IN15 Thailand to Singapore

BEST TIME:	December to April			
TROPICAL STORMS:	None			
CHARTS:	BA: 1355 US: 707			
PILOTS:	BA: 21, 44 US: 173, 174			
CRUISING GUIDES:	<i>Phuket and Malacca Straits Guide.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IN15A				
IN151 Phuket S 7°47'N, 98°25'E	IN152 6°00'N, 99°00'E	IN156 Penang N 5°30'N, 100°15'E	Georgetown 5°25'N, 100°20.5'E	201
	IN155 4°00'N, 100°00'E			
	IN157 2°55'N, 100°55'E	IN158 Channel W 1°14'N, 103°30'E	Singapore 1°16'N, 103°50'E	538

Departure	Intermediate	Landfall	Destination	Distance (M)
Route IN15B IN151 Phuket S	IN153 Butang 6°34'N, 99°24'E	IN154 Langkawi 6°15'N, 99°40'E	Bass Harbour 6°18'N, 99°50'E	129

The west coast of Thailand south of Phuket can be cruised throughout the year as it is not affected by the cyclones that originate in the Bay of Bengal, although the more pleasant weather occurs during the NE monsoon. During the SW monsoon the weather is sultry and hot and the frequency of squalls is higher. Sailing conditions along the Malaysian coast and in the Malacca Strait are also better during the NE monsoon. In both seasons the main current has a northerly set.

Although a passage through Malacca Strait can be undertaken throughout the year, the best weather conditions will be experienced during the NE monsoon, when the frequency of squalls is much lower than during the opposite season. Also less frequent are the notorious *sumatras*, which can make navigation very difficult in these busy waters as the squalls are accompanied by heavy rain and gale force winds. As mentioned earlier, another feature of navigation in Malacca Strait are the strong tidal currents which, combined with the normally light winds, make it more convenient to anchor between tides. This can easily be done as there are anchoring depths all along the Malaysian shore and there are sufficient protected places where one can stop for a few hours. The Malaysian side is preferable if this passage is done in shorter stages. Light winds and calms are more frequent during the day, so it is better to sail at night when breezes are steadier. One hazard which is almost impossible to avoid at night are the numerous fish traps that line the two shores. It is therefore recommended to sail in deeper waters during the

hours of darkness.

On leaving Phuket, southbound boats have the choice of either taking an inshore route (IN15B) and stopping in a number of conveniently placed ports along the Malaysian shore, or staying offshore (IN15A). Leaving from WP IN151, south of Phuket, the offshore route goes to WP IN152. If planning to stop in Langkawi, the nearest port of entry into Malaysia, the inshore route is taken to WP IN153, halfway between Besi and Tenga islands in the Butang group. From there the course can be altered for WP IN154, off the west coast of Langkawi. While the offshore route continues to WP IN155, those wishing to stop at Penang should set course for WP IN156, at the entrance into North Channel leading to Georgetown.

The density of shipping traffic increases as one moves towards Singapore, and by the time the offshore route has reached WP IN157 one should be prepared for a lot of shipping. The route continues to WP IN158, at the entrance into the Singapore Channel. The new Raffles Marina, on the west shore of Singapore Island, is the best place to make for in this, the busiest port in the world.

Although most cruising boats prefer the west coasts of Malaysia and Thailand, a number of yachts have ventured recently along the east coasts of these two countries which face the South China Sea. There are many attractive fishing harbours along the coast from Singapore to the Gulf of Siam. Because that coast is exposed to easterly winds, it is better to sail there during the SW monsoon. See route PN41 (page 226) for more details.

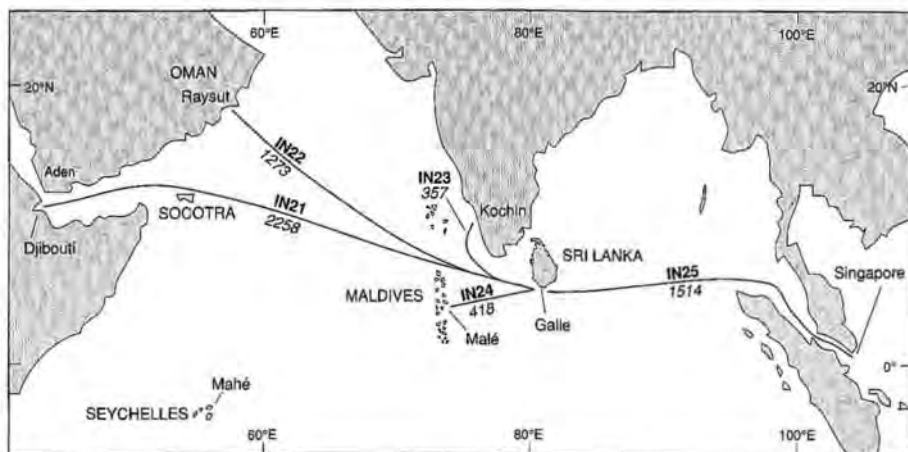
IN20 ROUTES FROM SRI LANKA

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Sri Lanka occupies such a strategic position at the crossroads of the North Indian Ocean that few

boats pass it by without stopping. Because the capital Colombo is a busy commercial harbour, all

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IN20 Routes from Sri Lanka

cruising boats call at Galle, on the southern tip of the island. The usual time to arrive is at the height of the NE monsoon, in January and February, when the small port is full to capacity. Because most world voyagers are westbound towards the Red Sea and Suez Canal, eastbound passages are rather rare although there are a few boats arriving in Sri Lanka from the Red Sea or East Africa. Those who plan to sail eastwards across the North Indian Ocean must wait for the SW monsoon, which provides excellent sailing conditions even if at times the winds might be too strong for some people's liking. Although most boats passing through Sri Lanka are in a hurry to reach the Red Sea, some use the island as a convenient starting point for a cruise among the islands scattered around the centre of the Indian Ocean.

The NE monsoon only sets in at the end of November or even in December, arriving with

squally weather and rain. The moderate NE winds prevail with fine dry weather until March or April. The SW monsoon lasts longer than elsewhere, beginning in May and lasting right through until December. The SW monsoon often commences with a 'monsoon burst', a blast of east wind that arrives with rain, thunder and lightning after a week of large clouds and vivid lightning which disappear after sunset. The SW winds are fairly constant in direction, usually strengthening to 20-35 knots by mid-morning and slackening off in the late afternoon, dropping to around 10 knots during the night. Heavy rain occurs on the SW coast from May to September. The south coast is affected by heavy swell during the SW monsoon. Although rarely hit by cyclones originating in the Arabian Sea, which move to the NW, those which originate in the Bay of Bengal can strike Sri Lanka, most frequently in November and December.

IN21 Sri Lanka to Red Sea

BEST TIME:	January to March
TROPICAL STORMS:	April to May, October to November
CHARTS:	BA: 4071 US: 71
PILOTS:	BA: 38, 64 US: 170, 172, 173
CRUISING GUIDES:	<i>Red Sea Pilot</i>

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IN21A				
IN211 Galle W 6°01'N, 80°13'E	IN212 Eight 7°50'N, 73°00'E			
	IN213 Socotra NE 13°20'N, 54°30'E	IN214 Tadjoura 11°40'N, 43°13'E	Djibouti 11°36.5'N, 43°07.5'E	2258
Route IN21B				
IN211 Galle W	IN212 Eight IN213 Socotra NE	IN215 Yemen SE 12°44'N, 45°00'E	Aden 12°48'N, 44°58'E	2146

At the height of the NE monsoon, when the average wind strength is between 10 and 15 knots, this passage can be truly delightful. There is also a favourable current and the frequency of gales in the North Indian Ocean is nil. Winds become lighter towards March and at such times it is advisable to leave Sri Lanka with a good reserve of fuel. The one problem to worry about is the large amount of shipping, either converging into the Gulf of Aden, or crossing to and from the Persian Gulf.

Having left Galle Harbour through the Western Channel, boats bound for Djibouti (route IN21A) from WP IN211 can set an initial course for WP IN212 to pass through the Eight Degree Channel, 20 miles south of Minicoy Island. The route then crosses the Arabian Sea to WP IN213, 30 miles NE of Socotra Island. If the winds allow it, Socotra should be passed to the north and at least 30 miles off, due to the apparent unfriendliness of its inhabitants. After the middle of March, if SW winds are experienced near the island, it may be necessary to pass south of Socotra and between it and the African coast.

From WP IN213 a course can be set for WP

IN214, in the Gulf of Tadjoura. The route passes south of the Musha islands and then turns SW towards the port of Djibouti avoiding the various dangers, all of which are marked by buoys. The recommended anchorage (11°36.1'N, 43°08.1'E) is off the Djibouti Yacht Club whose facilities may be used by visiting boats. The various authorities are in the nearby commercial harbour and must be visited to complete entry formalities.

From WP IN213, boats bound for Aden (Route IN21B) should set a course for WP IN215, at the entrance into the port of Aden. A marked channel leads into the Inner Harbour, where yachts anchor off the customs dock. Boats are normally met on arrival by a port control launch and directed to the anchorage.

This passage is not normally undertaken during the SW monsoon and it should not even be considered. The only alternative is to cross the equator and make one's westing with the help of the SE trade winds, possibly south of the Chagos Archipelago, before recrossing the equator. As such a route runs close to the Seychelles, directions would be similar to those for route IT16 (page 388).

IN22 Sri Lanka to Oman

BEST TIME:	January to March
TROPICAL STORMS:	May to June, October to November
CHARTS:	BA: 4071 US: 71
PILOTS:	BA: 38, 64 US: 170, 172, 173

ROUTES IN THE NORTH INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
PN221 Galle W 6°01'N, 80°13'E	IN222 Nine S 9°00'N, 73°00'E	IN223 Oman SE 16°52'N, 54°05'E	Raysut 16°56'N, 54°00'E	1273

Rather than sail nonstop to the Red Sea, a few boats break the voyage on the way, Oman providing one of the few places where this is possible. The course after leaving Galle at WP IN221 leads to WP IN222, south of the Laccadive Islands in the middle of the Nine Degree Channel. Occasionally boats have stopped at Sueli Par, an atoll on the north side of the channel. A course can then be set for WP IN223, five miles SE of the entrance into Raysut harbour.

The weather during the NE monsoon is very pleasant and the passage from Sri Lanka usually enjoys excellent winds. The passage should not be

made before the end of the year to allow the monsoon to establish itself.

Although the Sultanate of Oman does not encourage tourism, cruising boats that make the detour to stop there are treated courteously. Foreign boats are only allowed to stop in Raysut (Mina Razute), an excellently protected harbour. Those who have had the foresight to arrive with visas may move around the country freely, those without have to observe a curfew and are only allowed outside the port area during daylight hours on working days (Saturday to Wednesday).

IN23 Sri Lanka to India

BEST TIME:	December to February			
TROPICAL STORMS:	May to June, October to November			
CHARTS:	BA: 4706 US: 706			
PILOTS:	BA: 38 US: 173			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IN231 Galle W 6°01'N, 80°13'E	IN232 Comorin 7°45'N, 77°20'E			
	IN233 Tangaserry 8°50'N, 76°25'E	IN234 Cochin SW 9°55'N, 76°12'E	Cochin 9°58'N, 76°14'E	357

Mainly because of considerable bureaucratic hurdles, only a small number of yachts include India in their cruising plans. Although the NE monsoon has more settled weather, the high proportion of NW winds make it difficult to reach most ports on the west coast of the Indian subcontinent during this monsoon. Coastal navigation is made somewhat easier between December and February by alternating land and sea breezes which make it possible to take long tacks along the coast. When sailing along the coast at night it is almost impossible to avoid the numerous fishing nets and small boats without lights that are a feature of this coast. During the hours of darkness it is safer to stay a few miles offshore.

The northbound passage is not easier during the SW monsoon when the weather is often unsettled. One alternative is to reach NW India towards the end of the SW monsoon, in September, and sail down the coast with the help of the NW winds and south-setting current that occur at the change of seasons. During the NE monsoon constant, light northerly winds will be experienced as far north as Cochin. For this reason few boats venture further north than Cochin, where it is possible to leave the boat under guard and travel inland.

Having left Galle Harbour through the Western Channel, from WP IN231, a course can be set for WP IN232, 20 miles south of Cape Comorin, the southern tip of India. In strong winds and big seas,

this point should be rounded further offshore as the seas tend to get very rough in its vicinity. The route then swings north parallel to the coast to WP IN233, off Tangasserri Point. Another course alteration is made for WP IN234, SW of the entrance into Cochin harbour. Entering the well protected port at night

is possible, although the lights on several buoys have been reported as not working. Arriving yachts should contact Cochin Port Authority on VHF channel 16 and anchor off the north tip of Willingdon Island, where a customs launch will come to start entry formalities.

IN24 Sri Lanka to Maldives

BEST TIME:	January to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4707 US: 707			
PILOTS:	BA: 38 US: 173			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
IN241 Galle W 6°01'N, 80°13'E	IN242 North Malé 4°18'N, 73°40'E	IN243 Malé E 4°10'N, 73°33'E	Malé 4°10'N, 73°30'E	418

This passage is best made during the NE monsoon when winds are mostly favourable. Contrary winds and a strong east-setting current are the order of the day for a passage during the SW monsoon, and even during the transitional months the winds are often westerly. Tropical storms very rarely touch the Northern Maldives and the danger of encountering a cyclone along this route is remote. The Maldives should be approached with great caution both because they are all low lying islands and because of the strong currents.

From WP IN241 outside Galle harbour a direct course leads to North Malé Atoll. If heading straight for the capital Malé (the only port of entry), landfall should be made at WP IN242, south of Mirufenfushi and Diffushi, two low islets marking the easternmost point of North Malé Atoll. The course can then be altered for WP IN243, 2.5 miles east of Malé Passage that leads into the large lagoon. Port Control should be contacted on arrival on VHF channel 16.

IN25 Sri Lanka to Singapore

BEST TIME:	July to September			
TROPICAL STORMS:	May to November			
CHARTS:	BA: 4707 US: 707			
PILOTS:	BA: 38, 44 US: 170, 173, 174			
CRUISING GUIDES:	<i>Phuket and Malacca Straits Guide.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
Route IN25A IN251 Galle SE 5°58'N, 80°15'E	IN252 Dondra 5°50'N, 80°35'E IN253 Nicobar 6°15'N, 95°10'E IN254 Malacca N 5°00'N, 99°10'E IN255 2°55'N, 100°55'E	IN256 Channel W 1°13'N, 103°20'E	Singapore 1°16'N, 103°50'E	1514

ROUTES IN THE NORTH INDIAN OCEAN

Departure	Intermediate	Landfall	Destination	Distance (M)
Route IN25B				
IN251 Galle SE	IN252 Dondra IN253 Nicobar	IN257 Penang N 5°30'N, 100°15'E	Georgetown 5°25'N, 100°20.5'E	1206
Route IN25C				
IN251 Galle SE	IN252 Dondra IN253 Nicobar IN254 Malacca N	IN258 Klang N 3°20'N, 101°00'E	Port Klang 3°00'N, 101°24'E	1323

The recommended time for this passage is during the SW monsoon, although at its height the winds may be rather too strong. The transition months may provide better sailing conditions, but they also carry the higher risk of cyclones. Although the cyclone season in the Bay of Bengal extends over the entire SW monsoon period, at the height of the monsoon the development of tropical storms is opposed by the strong monsoon; the few cyclones between July and September normally stay well to the north of the area crossed by this route.

In the Malacca Strait the SW monsoon is usually blocked by the land mass of Sumatra and better winds are therefore found on the Malaysian side of the strait. Sailing along that shore is in any case recommended as one can clear into Malaysia at a number of ports, whereas a stop in Sumatra necessitates the compulsory Indonesian cruising permit. The one notable exception is Sabang, on Pulau Wé, a small island off the northern tip of Sumatra where boats have been allowed to stop briefly even without a permit. Because of the strong tidal currents in Malacca Strait, it is usually better to anchor between tides. The SW winds are strongest in the northern portions of the Malacca Strait, variable from SE to SW with calms in the centre, and more SE in southern areas towards Singapore.

Sea and land breezes occur on either coast and up to 20 miles offshore. The sea breeze begins about mid-morning and reaches a maximum in the afternoon, dying away at sunset. The strength of the breeze can be augmented to 20 knots if it combines with the prevailing monsoon. On the Malaysian coast the night land breeze can be very strong, starting in the evening and sometimes blowing hard all

night. Between April and November the area is affected by *sumatras*, thundery storms with gale force winds, which blow across from Sumatra and last for several hours.

Having left Galle harbour through the Eastern Channel, from WP IN251 the route follows Sri Lanka's south coast to WP IN252, off Dondra Head, the southern tip of the island. The route then crosses the Bay of Bengal to WP IN253, south of Great Nicobar Island. If the intention is to sail nonstop to Singapore, the course should be altered for WP IN254 at the entrance into Malacca Strait. The off-shore route (IN25A) continues to WPs IN255 and IN256, at the entrance into the Singapore Channel. The new Raffles Marina, on the west shore of Singapore Island, is the best place to stop in this extremely busy port.

Boats intending to visit some of Malaysia before reaching Singapore can clear in at Penang (IN25B). From WP IN253, the course should be altered for WP IN257, at the entrance into North Channel leading to Georgetown, the main town on the island. The customs office is in Georgetown, whereas the immigration office is on the mainland, at Butterworth. When leaving Penang, boats must not pass under the bridge joining Penang to the mainland without written permission.

Alternatively, boats intending to sail direct to Port Klang (IN25C) from WP IN254 should alter course for WP IN258, at the northern entrance into Klang Strait. This leads into Port Klang, which serves Malaysia's capital Kuala Lumpur. Visiting boats may use the facilities of the Royal Selangor Yacht Club in Port Klang, located on the eastern shore of the harbour.

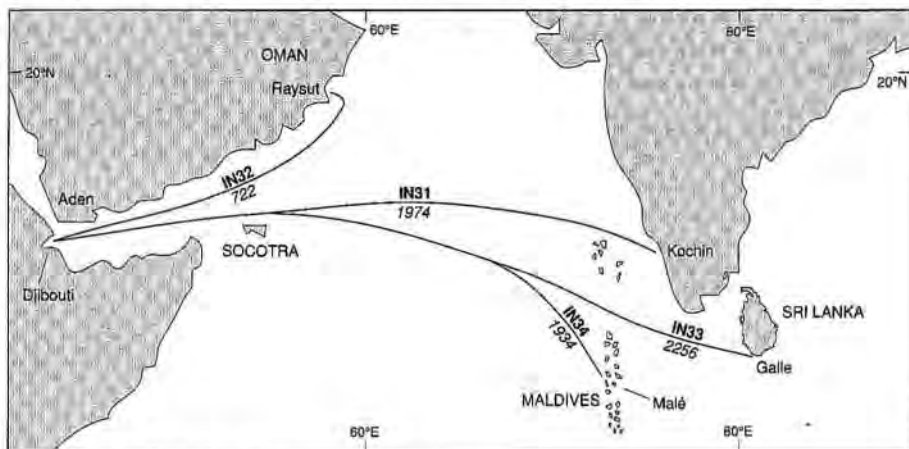
IN30 ROUTES IN THE ARABIAN SEA

IN31 <i>India to Red Sea</i>	377
IN32 <i>Oman to Red Sea</i>	378
IN33 <i>Red Sea to Sri Lanka</i>	379
IN34 <i>Red Sea to Maldives</i>	380

Most small boat traffic in the Arabian Sea is west-bound and the busiest routes are those sailed by boats using the NE monsoon to reach the Red Sea from Sri Lanka or the Maldives. Eastbound voyages are far less common and, outside the months of January and February, sailing boats are quite a rarity. The mostly unpleasant weather encountered during the SW monsoon is not the only reason why most sailors avoid the North Indian Ocean in summer. The other reason is the less than friendly reception extended to cruising yachts in many of the countries bordering on the Arabian Sea.

The seasonal winds of this sea gave us the word 'monsoon' and both the NE and SW monsoons

blow with great strength and constancy over this area. The NE monsoon begins in November and is the time of fair weather. In the northern areas it can be more N than NE and even NW. It blows at an average 10 to 15 knots at the beginning of the season. The winds increase to 15 to 20 knots in December and can be even stronger in the north. The wet season coincides with the SW monsoon, which commences in May in the south and spreads over the whole area by June. The weather can be very squally at the monsoon changeover. On the Indian coast, the SW monsoon arrives with a sudden burst of wind from the east, heavy rain, and thunder for several hours before the SW winds



IN30 Routes in the Arabian Sea

take over. This burst of the monsoon is preceded by a week of vivid lightning which disappears every day at sunset. The SW winds in the Arabian Sea are very strong and can blow at gale force for several days. There is a high frequency of gales near the island of Socotra in July. In September the winds start weakening and the monsoon breaks up and disappears by October.

Cyclones occur at two periods of the year which

coincide with the monsoon changeover. April to July is one period with a high frequency, with June having the highest incidence of cyclones. October has the highest frequency in the other period, although cyclones can occur from September through until December. Most cyclones curve NW to strike the shores of the Arabian Peninsula or else tend to recurve to the NE towards India and Pakistan.

IN31 India to Red Sea

BEST TIME:	December to February			
TROPICAL STORMS:	May to June, October to November			
CHARTS:	BA: 4705 US: 705			
PILOTS:	BA: 38, 64 US: 172, 173			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IN311 Cochin W 9°55'N, 76°12'E	IN312 Nine N 9°50'N, 72°00'E IN313 Socotra NE 13°20'N, 54°30'E	IN316 Tadjoura 11°40'N, 43°13'E	Djibouti 11°36.5'N, 43°07.5'E	1974
IN311 Cochin W	IN312 Nine N IN314 Socotra S 11°30'N, 53°40'E IN315 12°30'N, 50°00'E	IN316 Tadjoura	Djibouti	1968
IN311 Cochin W	IN312 Nine N IN313 Socotra NE	IN317 Yemen SE 12°44'N, 45°00'E	Aden 12°48'N, 44°58'E	1860

A direct route to the Red Sea can be sailed from anywhere on the west coast of India at the height of the NE monsoon, from December to the beginning of March. After the middle of March the winds are less constant and there is a higher percentage of calms in the Arabian Sea. Towards the end of the NE monsoon choosing the best route through this area becomes crucial as there is an increased chance of contrary winds close to Socotra Island. In April it is advisable to steer for a point 50 miles south of Socotra so as to be able to clear the Horn of Africa comfortably as the current is also setting north towards Socotra at this time.

From WP IN311, outside Cochin Harbour, the route runs due west through the Nine Degree Channel staying south of Kalpeni and Suheli Par. Occasionally boats have been able to stop briefly in the latter, which is an atoll with a well protected lagoon. From WP IN312 a course can be set for IN313, 30 miles NE of Socotra Island. After the middle of March, if SW winds are experienced near the island, it may be necessary to pass south of Socotra and between it and the African coast. In such a case, from WP IN312 a course should be set for WP IN314 south of Socotra. Having sailed past Cape

Guardafui, at WP IN315 the northern route is rejoined for the port of destination, as described below.

From WP IN313, if the intention is to sail to Djibouti, course should be set for WP IN316, in the Gulf of Tadjoura. The route goes south of the Musha Islands and then turns SW towards the port of Djibouti. The recommended anchorage is off the Djibouti Yacht Club whose facilities may be used by visiting boats. Entry formalities are completed in the nearby commercial harbour.

From WP IN313, boats bound for Aden should sail for WP IN317, at the entrance into the port of Aden. A marked channel leads into the Inner Harbour, where yachts anchor off the customs dock. Boats are normally met on arrival by a port control launch and directed to the anchorage.

A direct passage across the North Indian Ocean is virtually impossible during the SW monsoon, from May to September, when the only alternative is to make a long detour south of the equator via the Chagos Archipelago. This route passes NE of the Seychelles and recrosses the equator in about longitude 53°00'E. See also route IT16 (page 388).

IN32 *Oman to Red Sea*

BEST TIME:	January to March			
TROPICAL STORMS:	May to June, October to November			
CHARTS:	BA: 4705			
	US: 705			
PILOTS:	BA: 64			
	US: 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IN321 Raysut SW 16°53'N, 53°58'E	IN322 Fartak 15°00'N, 52°20'E	IN323 Yemen SE 12°44'N, 45°00'E	Aden 12°48'N, 44°58'E	611
IN321 Raysut SW	IN322 Fartak	IN324 Tadjoura 11°40'N, 43°13'E	Djibouti 11°36.5'N, 43°07.5'E	722

Excellent sailing conditions prevail during the NE monsoon, January and February being the best months to head for the Red Sea. Because of a higher percentage of calms near land, the initial course from Raysut should lead offshore. The proportion of SW winds increases towards the end of March when a contrary current also starts making itself felt parallel to the Arabian coast. The passage should not be undertaken during the SW monsoon, when strong headwinds make it almost impossible to reach the Red Sea along this route. During the

transitional period between monsoons, the area is subject to tropical storms.

From WP IN321, three miles SW of Raysut, an initial course is set for WP IN322, south of Ras Fartak. The route runs parallel to the coast all the way to Aden as far as WP IN323 in the approaches to Aden. Boats bound for Djibouti will continue to WP IN324 south of the Musha Islands in the Gulf of Tadjoura, in the approaches to the port of Djibouti. See IN31 for further details on both Aden and Djibouti.

IN33 *Red Sea to Sri Lanka*

BEST TIME:	September			
TROPICAL STORMS:	May to June, October to November			
CHARTS:	BA: 4071			
	US: 71			
PILOTS:	BA: 98, 64			
	US: 172, 173			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IN331 Tadjoura 11°40'N, 43°13'E	IN333 Socotra N 13°30'N, 54°00'E	IN336 Galle W 6°01'N, 80°13'E	Magalle 6°01.9'N, 80°13.7'E	2256
IN332 Yemen SE 12°44'N, 45°00'E	IN333 Socotra N IN335 Nine N 9°50'N, 72°00'E	IN336 Galle W	Magalle	2148

ROUTES IN THE NORTH INDIAN OCEAN

Choosing the time for this passage presents a major dilemma, as the cyclone free months of July and August also have the highest frequency of gales. In fact the frequency of gales in July just to the east of Socotra is similar to that off Cape Horn in summer. As passages across the Arabian Sea can be extremely rough at the height of the SW monsoon, only September offers the prospect of a reasonably comfortable voyage. The transition periods between the two monsoons cannot be recommended either because of the risk of cyclones, although an April passage has a good chance of fair winds and a lower risk factor.

The course from either Djibouti or Aden passes well to the north of Socotra to avoid the strong west-setting current along the African coast in the

Gulf of Aden. From WP IN331 south of the Musha Islands in the Gulf of Tadjoura, a course can be set for WP IN333 north of Socotra. Boats leaving from Aden take their departure from WP IN332 and use the same intermediate WP IN333 north of Socotra. Sri Lanka can be reached through either the Nine or Eight Degree Channels, which are separated by Minicoy Island. Whichever channel is used it should be approached with caution, especially at night or in the thick weather which is sometimes associated with the SW monsoon.

Landfall will be made at WP IN336, just outside Galle Harbour, from where Western Channel leads to the small port in the NE part of the bay. Boats are usually met by a local agent whose services are necessary to complete entry formalities.

IN34 Red Sea to Maldives

BEST TIME:	September			
TROPICAL STORMS:	May to June, October to November			
CHARTS:	BA: 4071			
	US: 71			
PILOTS	BA: 38, 64			
	US: 172, 173			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IN341 Tadjoura 11°40'N, 43°13'E	IN342 Socotra N 13°30'N, 54°00'E			
	IN343 Ari 4°40'N, 72°30'E			
	IN344 Toddu 4°40'N, 73°00'E	IN345 Wadu 4°09'N, 73°20'E	Malé 4°10'N, 73°30'E	1934

Directions are very similar to those for route IN33 and a course for Malé, the capital and port of entry for the Maldives, should only be set after having passed well to the north of Socotra. The low lying Maldives should be approached with extreme caution because of the strong current that sets on to the islands during the SW monsoon. It is indeed crucial that WP IN344 is reached in the morning so that the remaining distance to Malé can be covered during daylight hours.

From WP IN342 north of Socotra, the route leads to WP IN343, north of Ari Atoll. To reach the cap-

ital Malé, the route continues east to pass north of Toddu Atoll. At WP IN344, it turns SE towards WP IN345 at the entrance into Wadu Channel. This leads to Malé, which is reached through Malé Passage. In good light it may be possible to reach Malé by entering North Malé Atoll through one of its western passes. The Port Authority should be contacted on VHF channel 16 on arrival. As Malé is the only official port of entry, boats are not allowed to stop anywhere before having cleared in there.

16

TRANSEQUATORIAL ROUTES IN THE INDIAN OCEAN

From Indonesia in the east to Kenya in the west, the equator is crossed by a variety of routes used mostly by northbound boats. Because of the finely matched seasons in the two hemispheres of the Indian Ocean, with careful planning it is possible to cruise throughout the year, always having the benefit of favourable weather. Over the cen-

turies the Arab dhows set a perfect example of how to use the prevailing weather conditions to best advantage. Although their trading routes do not always coincide with those used by modern cruising yachts, today's sailors have much to learn from those skilled mariners, some of whom are still plying the coasts of Arabia and East Africa.

IT10 NORTHBOUND ROUTES

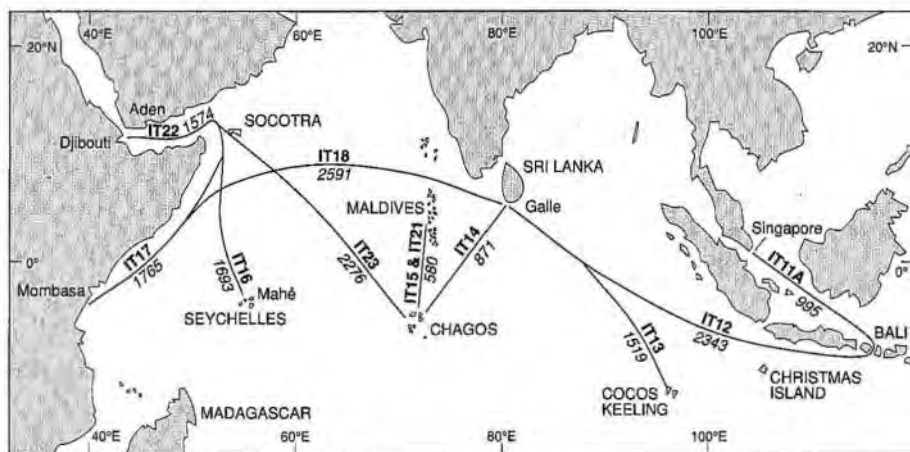
IT11 <i>Bali to Singapore</i>	382
IT12 <i>Bali to Sri Lanka</i>	384
IT13 <i>Cocos Keeling to Sri Lanka</i>	385
IT14 <i>Chagos to Sri Lanka</i>	386
IT15 <i>Chagos to Maldives</i>	387
IT16 <i>Seychelles to Red Sea</i>	388
IT17 <i>Kenya to Red Sea</i>	389
IT18 <i>Kenya to Sri Lanka</i>	390

For centuries Arab dhows have sailed from the Persian Gulf to the East African coast to trade, sailing down on one monsoon and back on the other, although in present day Kenya and Tanzania they are becoming a rare sight. The SE trade winds blow steadily from April to October and rarely exceed 20 knots. The wide band of the northbound current runs close to the shore and can be augmented by these SE trade winds so as to reach 4 knots. Therefore it makes sense to plan any northbound passages to coincide with this season. During the NE monsoon, when winds from the NE and E prevail, this current is slacker. Along the Tanzanian coast it is possible to take an inshore route that

stops inside the reefs and various offshore islands.

Boats intending to set off on a northbound transequatorial passage should time this to take best advantage of the monsoons on either side of the equator. From December to March, when the ITCZ moves south, the NE monsoon is deflected across the equator to give a NW flow of wind. This NW monsoon is not so reliable and brings rain. It blows most strongly in January and February. This period is also the cyclone season in the South Indian Ocean, but these storms normally form south of Chagos and move in a southerly direction. They almost never track north towards the equator.

TRANSEQUATORIAL ROUTES IN THE INDIAN OCEAN



Transequatorial routes in the Indian Ocean

IT11 Bali to Singapore

BEST TIME:	May to September
TROPICAL STORMS:	None
CHARTS:	BA: 4508 US: 508
PILOTS:	BA: 34, 36, 44 US: 163, 174
CRUISING GUIDES:	<i>Phuket and Malacca Straits Guide.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT11A				
IT110 Bali E	IT111 Lombok			
8°43'S, 115°11.5'E	8°24'S, 115°47'E			
	IT112 Karang			
	7°03'S, 114°53'E			
	IT113 Bawean E			
	5°45'S, 113°00'E			
	IT114 Karimata			
	3°30'S, 109°30'E			
	IT115 Mombarang			
	2°30'S, 109°10'E			
	IT116 Ontario			
	2°07'S, 108°38'E			
	IT117 Lingga			
	0°00', 106°00'E			
	IT118 Mapor	IT119 Channel S	Singapore	995
	1°00'N, 105°00'E	1°20'N, 104°40'E	1°16'N, 103°50'E	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT11B IT110 Bali E	IT111 Lombok IT112 Karang IT1110 Bawean SE 6°00'S, 112°30'E IT1111 Bangka 3°50'S, 107°00'E		Singapore	1010

There are two main routes that can be sailed from Bali to Singapore, either direct through the Karimata Strait (IT11A) or by the more indirect route via Bangka and Riouw Straits (IT11B). The first route is faster and can be done nonstop as it is mostly offshore, the second route is slower and offers the possibility of overnight stops if the winds are not favourable. The second route is not recommended for those who do not possess an Indonesian cruising permit. For both routes the best time is during the South Indian SE monsoon and the North Indian SW monsoon, between May and September. During the transitional months of April, October, and early November, winds are more variable and calms frequent. During these months there is also a high frequency of rain squalls, often of torrential proportions, that make it difficult to anchor every night in safety and make the offshore route more attractive.

On leaving Benoa the course leads NE through the Lombok Strait where extremely strong currents can be experienced. During the SE monsoon the main direction of the currents is southerly, although at certain times a favourable current sets NE along the east coast of Bali. This current occurs approximately at the time of the moon's transit and lasts for two or three hours so it is worth timing a departure for two hours before the transit and leave Benoa at slack water.

From WP IT110, outside Benoa Harbour, the offshore route (IT11A) sets off in a NE direction through Selat Badung (Badung Channel), NW of Nusa Lembongan, as far as WP IT111, off Bali's easternmost point. From there the route turns NW to cross the Bali Sea to pass through the 10 mile wide gap between Goagoo island and Karang Takat Reef at WP IT112. As neither of these dangers are lit, one should attempt to pass through this area during daylight. Bearing in mind the distances involved, a good tactic is to leave Benoa around noon so as to pass WP IT111 before nightfall, cross

the Bali Sea at night and arrive at WP IT112 the following morning. An alternative way to reach the Java Sea, especially at night, is to use Sapudi Strait, east of Madura Island, which has lights on Sapudi island itself.

Having reached the Java Sea the route continues in a NW direction and passes east of Bawean Island through WP IT113 to WP IT114 at the entrance into Karimata Strait, east of Borneo (Kalimantan), a wide body of water encumbered by many unlit reefs. The position of some of these do not necessarily agree with GPS observations, so the area should be treated with great caution. Strong currents of up to 2 knots have been reported, their direction depending on the monsoon and setting predominantly N or NW from May to September and S or SE from November to March. The route goes to WP IT115 before the course is altered for WP IT116 halfway between Ontario and Flying Fish reefs. The route continues in a NW direction and crosses the equator at WP IT117. Bintan Island is passed to the east by making for WP IT118 before the course can be altered for Singapore Strait. The area E and NE of Bintan should be passed in daytime as there are often fishing nets set up in those waters. At night it is therefore advisable to stay further offshore.

There is a choice of channels at the eastern entrance into the Singapore Strait. Coming from the SE, the most convenient is South Channel, between the north coast of Bintan and Horsburgh Reef. To reach it, from WP IT118 the course should be altered for WP IT119. From this point, it is equally easy to pass through either South or Middle Channel.

Route IT11B leads through Bangka Strait, the narrows between Sumatra and Bangka islands. Directions for reaching the Java Sea are similar to those given above. Once the Java Sea has been reached, from WP IT112 a course can be set for WP IT1110, SE of Bawean Island. The route continues

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in a NE direction to WP IT1111, in the approaches to Bangka Strait. The direction of the wind in the strait is usually parallel to the coast, although strong SW winds can be experienced towards the end of the SE monsoon. Because of the nature of the tidal currents in the strait, it is better to stay close to the coast of Sumatra during the SE monsoon.

North of Bangka Strait it is possible to follow either a direct or an indirect route to Singapore. The former leads outside Lingga island to Riouw Strait and because it is easily navigable it is used by most boats. The indirect route follows the coast of Sumatra through Berhala and Pengelap Straits and

joins the direct route for the final approach to Singapore through Riouw Strait. A slightly more indirect route leads to Singapore from SW through Durian Strait and Phillip Channel.

Boats arriving in Singapore from the SE may find it easier to go to the anchorage off the Changi Yacht Club, NE of Singapore Island, and complete entry formalities from there. The alternative is the new Raffles Marina (1°20.53'N, 103°38.22'E), on the west coast of Singapore Island. Yet another option is to go only as far as the new Nongsa Marina on Bintan Island.

IT12 Bali to Sri Lanka

BEST TIME:	September to mid-October			
TROPICAL STORMS:	May to July, October to November (Bay of Bengal)			
CHARTS:	BA: 4071			
	US: 71			
PILOTS:	BA: 34, 38, 44			
	US: 163, 173, 174			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT12A				
IT121 Bali S	IT122 Java SW			
8°55'S, 115°12'E	7°30'S, 105°00'E			
	IT123			
	5°00'S, 95°00'E			
	IT124	IT125 Galle S	Magalle	2358
	0°00'N, 85°00'E	6°00'N, 80°14'E	6°01.9'N, 80°13.7'E	
Route IT12B				
IT121 Bali S	IT122 Java SW			
	IT126 Sumatra SW			
	4°30'S, 100°00'E			
	IT127			
	0°00', 96°30'E			
	IT128 Dondra	IT129 Galle E	Magalle	2343
	5°50'N, 80°35'E	5°59'N, 80°15'E		

This is a more direct route to reach the North Indian Ocean than route IT11 and is used mainly by those who are on their way to the Red Sea and wish to avoid sailing via Singapore and the Malacca Strait. If the port of departure is Bali it is best to head immediately offshore and sail south of Java. In September or early October the SE trade winds will provide favourable winds to about latitude 5°S, but because winds tend to be more consistent further south it is advisable not to set a direct course for Sri Lanka until

longitude 95°E has been reached, as both contrary winds and currents are more likely to be encountered closer to Sumatra. The transitional period from the SW to the NE monsoon provides the best conditions for this route. If the passage is made at the height of the SW monsoon, all necessary westing should be made south of latitude 5°S, as strong westerly winds will make it very difficult to reach Sri Lanka on a direct course. During the SW monsoon route IT12A should be sailed.

From WP IT121, south of Benoa harbour, the route runs south of both Bali and Java to WP IT122. If SE winds persist, one should continue in the same direction to WP IT123. Depending on weather conditions, the equator should be crossed as far west as possible and in any case not sooner than meridian 85°E has been reached (WP IT124). From this point a direct course can be set for Galle and WP IT125, south of Galle harbour which is entered through the Central Channel. The town of Galle is on the west side of the large bay, whereas the small port, where entry formalities are completed, is in the NE corner in Magalle.

This passage is not recommended during the NE monsoon when mostly contrary winds will be met,

especially south of the equator. If such a passage during the NE monsoon cannot be avoided (route IT12B), northing should be made in the lee of Sumatra by sailing not more than 50 miles west of the offlying islands. From WP IT122 SW of Java, the course should be altered for WP IT126 so as to follow a course parallel to the west coast of Sumatra. The NW course parallel to Sumatra may be continued after the equator has been crossed at WP IT127. The course should be changed for Sri Lanka only after favourable conditions have been found north of the equator. Directions for route IT13 should also be consulted as they refer to the same area of the Indian Ocean.

IT13 Cocos Keeling to Sri Lanka

BEST TIME:	September			
TROPICAL STORMS:	May to July, October to November. (Bay of Bengal)			
CHARTS:	BA: 4707 US: 707			
PILOTS:	BA: 34, 44 US: 170, 173			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT13A				
IT131 Keeling	IT132			
12°04'S, 96°50'E	4°00'S, 80°00'E			
	IT133	IT134 Galle S	Magalle	1712
	0°00', 80°00'E	6°00'N, 80°14'E	6°01.9'N, 80°13.7'E	
Route IT13B				
IT131 Keeling	IT135			
	0°00', 90°00'E			
	IT136 Dondra	IT137 Galle E	Magalle	1519
	5°50'N, 80°35'E	5°59'N, 80°15'E		

Although this passage can be made at any time of the year, most people who undertake it intend to continue their voyage towards the Red Sea and therefore plan to arrive in Sri Lanka on the eve of the NE monsoon. For this reason the timing of this passage should be carefully calculated, because passages later in the year risk encountering northerly winds north of the equator. It is therefore advisable to make this passage while the SW monsoon is still in force in the North Indian Ocean, September probably being the best month. Boats that have made this passage in the second half of October encountered light variable winds and

erratic currents between latitude 3°S and the equator. Similar conditions were experienced north of the equator all the way to Sri Lanka.

The most difficult aspect of this route is the fact that it crosses three different currents, none of which can be predicted with complete accuracy. The route runs first through the west-setting South Equatorial Current, its effect being probably cancelled out on nearing the equator by the east-setting Equatorial Countercurrent. The currents north of the equator depend on the state of the monsoon, setting east during the SW monsoon, west during the NE monsoon. However, it does

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appear that the combined set of the currents is usually to the east and all boats making this passage have found themselves further east than expected. Yet another factor to be borne in mind on this route is that it crosses the doldrums, although the belt of calms or light winds between the SE trade winds and the monsoon prevailing north of the equator is not too wide and sometimes the wind systems merge into each other almost without a break. During August and September the SE trade winds reach as far north as latitude 5°S. Leaving South Cocos Keeling from WP IT131 the recommended procedure at this time of year (route IT13A) is to

make for WP IT132, then sail north along the 80°E meridian until the equator is crossed at WP IT133. From this point a course can be set for WP IT134 south of Galle harbour.

If this passage is made during the NE monsoon, from December to March (route IT13B), as much northing as possible should be made soon after leaving Cocos Keeling so as to cross the equator in about longitude 90°E (WP IT135) and approach Sri Lanka from a better angle. Having crossed the equator, a direct course for Sri Lanka should only be set when favourable winds have been encountered.

IT14 Chagos to Sri Lanka

BEST TIME:	May to September			
TROPICAL STORMS:	November to December			
CHARTS:	BA: 4071			
	US: 71			
PILOTS:	BA: 38, 39			
	US: 170, 171, 173			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT14A				
IT141 Peros N	IT142	IT143 Galle S	Magalle	871
5°00'S, 72°00'E	0°00', 73°00'E	6°00'N, 80°14'E	6°01.9'N, 80°13.7'E	
Route IT14B				
IT141 Peros N	IT144	IT143 Galle S	Magalle	1047
	0°00', 82°00'E			

The strategy for this passage depends entirely on the state of the monsoon north of the equator. During the SW monsoon, from May to September, it is probably best to try and sail a direct course for Sri Lanka and only compensate for the set of the current after having crossed the equator (route IT14A). Attention should be paid to the strong currents that set around the northern part of the Chagos Archipelago. Although the winds can be expected to be light at the beginning of the passage, the effect of the monsoon should make itself felt on nearing the equator with winds veering gradual-

ly from south to SW and finally west.

Taking as departure point WP IT141 NE of Peros Banhos, the course stays east of the Maldives and crosses the equator at WP IT142. The course can then be altered for WP IT143 south of Galle from where the harbour is entered through Central Channel.

During the NE monsoon (route IT14B) it is essential to make as much easting as possible south of the equator which should be crossed in about longitude 82°E (WP IT144), so as to approach Sri Lanka from slightly east of south.

IT15 Chagos to Maldives

BEST TIME:	May to September			
TROPICAL STORMS:	None			
CHARTS:	BA: 4703			
	US: 703			
PILOTS:	BA: 38, 39			
	US: 171, 173			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT15A				
IT151 Peros N	IT152			
5°00'S, 72°00'E	0°00', 74°00'E			
	IT153 Felidhe	IT154 North Malé	Malé	584
	3°30'N, 74°00'E	4°09'N, 73°34'E	4°10'N, 73°30'E	
Route IT15B				
IT151 Peros N	IT155			
	0°00', 72°30'E			
	IT156 Nilandhe	IT157 Wadu	Malé	587
	3°20'N, 73°20'E	4°09'N, 73°20'E		

The most favourable sailing conditions for this route can be expected during the SW monsoon when southerly winds predominate south of the equator. During the changeover period winds are much lighter and there are long periods of calms. During the NE monsoon the winds south of the equator are mostly NW. Currents in this region can be very strong and their set is difficult to predict, particularly in the transitional period between monsoons. The strongest current during the SW monsoon is the Indian Monsoon Current, which sets strongly east on both sides of the equator.

From WP IT151 NE of Peros Banhos, the course is almost due north and there are no dangers en route until the Maldives archipelago is approached. The capital Malé is at the southern extremity of North Malé Atoll and as this is the only port of entry, all vessels must complete entry formalities there. This considerably complicates matters as most of the archipelago has to be crossed to reach Malé. For this reason, boats occasionally stop at Addu Atoll, the southernmost of the Maldives and the only one south of the equator.

Depending on the monsoon, to reach Malé the

course should pass east or west of the islands. As the currents set towards the islands, it is probably safer to sail in their lee, west during the NE monsoon and east during the SW monsoon. At all times, allowance should be made for the currents and also the fact that their set does not necessarily agree with the direction of the monsoon.

To pass east of the islands (route IT15A), the equator should be crossed at WP IT152. The route continues due north to WP IT153 east of Felidhe Atoll. It then swings NW to WP IT154, at the entrance into Malé Passage that leads into North Malé Atoll and the capital itself.

During the NE monsoon, the islands should be passed on their west side (route IT15B) by setting an initial course to cross the equator at WP IT155. The course turns almost due north to WP IT156 from where the channel is taken between North Nilandhe and Ari Atolls. The route continues in a NE direction to WP IT157 at the entrance into Wadu Channel between South and North Malé Atolls. The capital Malé is at the southern end of North Malé Atoll and is reached through one of the passages leading through the reef.

IT16 Seychelles to Red Sea

BEST TIME:	September to mid-October
TROPICAL STORMS:	May to June, October to November (North Indian)
CHARTS:	BA: 4071 US: 71
PILOTS:	BA: 3, 39, 64 US: 170, 171, 172
CRUISING GUIDES:	<i>Red Sea Pilot.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT16A				
IT60 Mahé N	IT161			
4°34'S, 55°27'E	0°00', 51°00'E			
	IT162			
	3°30'N, 49°00'E			
	IT163 Hafun			
	10°30'N, 52°00'E			
	IT164 Guardafui			
	12°00'N, 51°50'E			
	IT165	IT166 Tadjoura	Djibouti	1693
	12°30'N, 50°45'E	11°40'N, 43°13'E	11°36.5'N, 43°07.5'E	
		IT167 Yemen S	Aden	1584
		12°44'N, 45°00'E	12°48'N, 44°58'E	
Route IT16B				
IT160 Mahé N	IT168			
	0°00', 63°00'E			
	IT169 Socotra NE			
	13°20'N, 54°30'E			
	[IT164 Guardafui]			
	IT165	IT166 Tadjoura	Djibouti	2153

The best time to make this passage is towards the end of the SW monsoon, in September or early October, when the strength of the winds begins to subside in the NW part of the Indian Ocean. At this time of year the SE trade winds reach as far north as the equator. From there the winds become gradually SW and blow with increasing force as one approaches Socotra Island. This area is notorious for its high frequency of gales during the SW monsoon and this is the reason why an earlier passage, during July or August, is not recommended. Even towards the end of the SW monsoon winds can be very strong and this fact combined with the strong currents usually produce rough seas around the Horn of Africa.

Taking one's departure from WP IT160, off North Point on Mahé Island, boats sailing during the rec-

ommended period (route IT16A) should follow a NW course on leaving the Seychelles so as to cross the equator at WP IT161. If conditions allow it, more westing should be made while south, before the equator is crossed. This avoids the strong current that sets SE during the transitional period between monsoons. From the equator the course can be altered for WP IT162 from where the route runs parallel to the African coast. Along this coast the Somali Current sets strongly to the north and can reach rates as high as 170 miles per day in the area south of Socotra Island. During the transitional period, the SE trade winds blow as far as the equator and favourable winds can be held into the Gulf of Aden. In October winds in that area will be SW or S. However, the passage must not be left too late, because NE winds start to predominate north of the

equator after the second half of October. Thick haze and poor visibility make navigation hazardous along the African coast and a safe distance should be kept off the coast both at night and in day time.

From WP IT162 a course can be set for WP IT163, off Ras Hafun. From there the course turns almost due north to WP IT164, NE of Cape Guardafui. Having reached the Horn of Africa, the route passes SW of Socotra towards WP IT165, in the Gulf of Aden. If the intention is to call at Djibouti, from WP IT165 a course can be set for WP IT166, in the Gulf of Tadjoura. The route passes south of the Musha Islands and then turns SW towards the port of Djibouti avoiding the various dangers, all of which are marked by buoys. The recommended anchorage (11°36.1'N, 43°08.1'E) is off the Djibouti Yacht Club whose facilities may be used by visiting boats. The various authorities are in the nearby commercial harbour and must be visited to complete entry formalities.

From WP IT165, boats bound for Aden should alter course for WP IT167, at the entrance into the port of Aden. A marked channel leads into the Inner Harbour, where yachts anchor off the customs dock. Boats are normally met on arrival by a port control launch and directed to the anchorage.

Although better conditions may be experienced during the SW monsoon, the time of arrival in the Red Sea may not agree with most people's plans, unless one is prepared to spend the coming winter in the Red Sea and only reach the Mediterranean the following spring. Mainly for these reasons,

most boats tend to make this passage in the early part of the year (route IT16B). If the passage is attempted during the NE monsoon, sufficient easting should be made south of the equator so that the NE winds will be met at a better angle. Because of the strong N or NW winds that will be met on leaving the Seychelles, a NE course should be sailed so that the equator is crossed as far east as longitude 66°E or even 68°E. The ground lost to the east will be made up later when a better sailing angle will ensure good speeds once under the full influence of the NE monsoon. However, it may not be always necessary to make so much easting south of the equator and boats that have made the passage towards the end of the NE monsoon, in late February or March, have been able to sail a more northerly course after leaving the Seychelles and have crossed the equator around longitude 63°E (WP IT168). From the equator the course turns NW to pass, if conditions allow it, on the windward side of Socotra. During the NE monsoon winds in the Gulf of Aden are mostly easterly.

After the equator has been crossed, and if sufficient easting has been made, it should be possible to set a course that passes east of Socotra through WP IT169. If this proves impossible, or not convenient if the equator had been crossed too far to the west, a course should be set for WP IT164, NE of Cape Guardafui, to pass between Socotra and the Horn of Africa. From there similar directions apply as for the alternative route described above.

IT17 Kenya to Red Sea

BEST TIME:	April to May, September			
TROPICAL STORMS:	June, October			
CHARTS:	BA: 4071 US: 71			
PILOTS:	BA: 3, 64 US: 170, 171, 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IT171 Mombasa 4°00'S, 39°45'E	IT172 0°00', 43°00'E IT173 5°00'N, 49°00'E IT174 Hafun 10°30'N, 52°00'E			

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Departure	Intermediate	Landfall	Destination	Distance (M)
	IT175 Guardafui			
	12°00'N, 51°50'E			
	IT176	IT177 Tadjoura	Djibouti	1765
	12°30'N, 50°45'E	11°40'N, 43°13'E	11°36.5'N, 43°07.5'E	
		IT178 Yemen S	Aden	1656
		12°44'N, 45°00'E	12°48'N, 44°58'E	

This classic route of the Arab traders benefits from favourable winds throughout the SW monsoon, from May to September. However, as the winds often attain gale force during the months of July and August in the vicinity of Socotra and the Horn of Africa, the voyage is more comfortable either at the beginning or at the end of the SW monsoon. Good passages on this route have been made in September, when the winds are favourable both south and north of the equator and the strong Somali Current also gives a considerable boost to daily runs. The course runs parallel to the African coast, but because of the thick haze and poor visibility associated with the SW monsoon, particular attention must be paid to navigation. The most dangerous area is when approaching Ras Hafun, which has claimed several boats whose navigators had wrongly identified this headland.

The time of departure is critical, as the transitional period is very short and the NE monsoon can sometimes arrive before the middle of October, when both winds and current change direction. Alternatively, the passage can be made at the beginning of the SW monsoon, when winds might be lighter. If the passage is made at the height of the SW monsoon, in July or August, one must be prepared to put up with very strong winds and rough

seas. Although strong, the winds will be favourable as far as the Horn of Africa, but in the Gulf of Aden strong westerly winds will make it very difficult to reach Bab el Mandeb.

If this passage is made during the NE monsoon it is better to wait until the end of March, so as to arrive north of the equator at the change of monsoons. On leaving Mombasa, easting should be made south of the equator, which should be crossed in about longitude 53°E. The best tack should be sailed from there northwards so as to pass between Socotra and Cape Guardafui.

Boats making this passage at the optimum time, in late April or early May, on leaving Mombasa at WP IT171 should sail a course parallel to the coast and cross the equator at WP IT172. Continuing parallel to the coast, the route then passes through WP IT173 to WP IT174, off Ras Hafun. From here the course turns almost due north to WP IT175, NE of Cape Guardafui, to pass between Socotra and the Horn of Africa. Having passed the Horn of Africa, the route enters the Gulf of Aden and makes for WP IT176. From that point, boats bound for Djibouti should set a course for WP IT177 in the Bay of Tadjoura. Those planning to stop in Aden should alter course for WP IT178. See route IT16 for details on Djibouti and Aden.

IT18 Kenya to Sri Lanka

BEST TIME:	July to September
TROPICAL STORMS:	May to June, October to November
CHARTS:	BA: 4071 US: 71
PILOTS:	BA: 3, 38 US: 171, 173

IT20 SOUTHBOUND ROUTES

WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
IT181 Mombasa 4°00'S, 39°45'E	IT182 0°00', 44°00'E			
	IT183 4°00'N, 55°00'E			
	IT184 Maldives 7°30'N, 73°00'E	IT185 Galle W 6°01'N, 80°13'E	Magalle 6°01.9'N, 80°13.7'E	2591

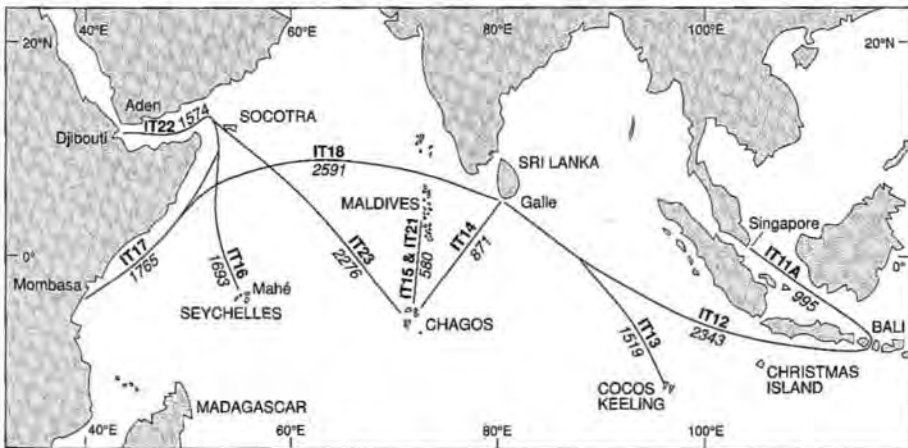
This is a route strictly for the SW monsoon, when both winds and current will be favourable. On leaving Mombasa at WP IT181, the route runs parallel to the African coast to take full advantage of the favourable current. After the equator is crossed at WP IT182, the course can be altered for WP IT183. From there, a course can be set for WP IT184, north of Ihavandifullu Atoll, in the Eight Degree Channel north of the Maldives. Having cleared the Eight

Degree Channel, the course can be altered for WP IT185 at the entrance into Western Channel that leads into Galle harbour.

During the recommended period there is no danger of cyclones in the southern part of the Arabian Sea. Route IN25 (page 375) gives directions for the continuation of the route to Malaysia and Singapore.

IT20 SOUTHBOUND ROUTES

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Transequatorial routes in the Indian Ocean

IT21 *Maldives to Chagos*

BEST TIME:	January to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4707 US: 707			
PILOTS:	BA: 38, 39 US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IT211 Wadu 4°09'N, 73°20'E	IT212 Nilandhe 3°20'N, 72°20'E IT213 0°00', 72°30'E	IT214 Peros W 5°13'S, 71°45'E	Fouquet 5°26.6'S, 71°48.5'E	607

The best time to make this passage is during the NE monsoon when favourable winds will be found both north and south of the equator. From May to November the predominant direction of the winds is southerly and even during the transitional period boats have experienced a high proportion of southerly winds, so the only time when one can be sure of fair winds is at the height of the NE monsoon. Permission must be obtained from the authorities in Malé if one wishes to visit the southern Maldives and possibly clear out at Addu, the southernmost atoll of the group.

Depending on the monsoon, the Maldives will be passed to the east or west. Because all islands are low and there are only a few navigational lights, navigation in the area is very difficult, the situation being compounded by the strong currents that sweep through the archipelago. For this reason, it is probably safer to sail in the lee of the islands. As it is assumed that the passage to Chagos will be

made during the NE monsoon, the recommended route passes to the west of the islands.

Having left Malé through Wadu Channel, from WP IT211, the course turns SW to pass through the channel between North Nilandhe and Ari Atolls. From WP IT212 the course turns S and crosses the equator in WP IT213. From there, the course continues almost due south to WP IT214, north of Peros Banhos in the Chagos Archipelago.

Diego Garcia, the main island of the group, is a military base leased by the British government to the USA and a stop in that island is only permitted in an emergency. However, boats can stop in most other islands of the Chagos Archipelago, Peros Banhos and the Salomon Islands being the most convenient stops for those arriving from the north. The recommended anchorage at Peros Banhos is in the lee of Fouquet Island, on the south side of the large lagoon.

IT22 *Red Sea to East Africa*

BEST TIME:	November to March
TROPICAL STORMS:	May to June, October
CHARTS:	BA: 4071 US: 71
PILOTS:	BA: 3, 64 US: 170, 171, 172

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IT221 Mandeb 12°20'N, 43°40'E	IT222 Asir 12°10'N, 50°45'E			
	IT223 Guardafui 12°00'N, 51°30'N			
	IT224 Hafun 10°30'N, 51°50'E			
	IT225 5°00'N, 49°00'E			
	IT226 0°00', 43°45'E	IT227 Kenya N 2°15'S, 41°00'E	Lamu 2°18'S, 40°55'E	1574

Because Kenya and other points along the east coast of Africa are easier to reach during the NE monsoon, passages to that area should be planned for that time. The major difficulty usually occurs soon after the Red Sea has been left behind, when consistent easterly winds make it difficult to get out of the Gulf of Aden. Once the Horn of Africa has been weathered, favourable winds and current ensure a fast sail along the east coast of Africa. For this reason, southbound passages through the Red Sea should take place in the autumn, so that the Gulf of Aden is crossed at the change of seasons, in late October or early November. However, arriving too early off the Horn of Africa carries the risk of the NE monsoon not yet being established. It is therefore a matter of weighing up the disadvantages of contrary winds in the Gulf of Aden against the advantages of favourable winds and current along the coast of East Africa.

Having passed through Bab el Mandeb, from WP

IT221, a direct course leads to WP IT222, off the Horn of Africa, which is rounded by setting course for WP IT223, off Cape Guardafui. From there the course goes due south to WP IT224 off Ras Hafun and then runs parallel to the African coast passing through WP IT225 and crossing the equator at WP IT226. A first port of entry into Kenya is at Lamu. The other two official ports of entry are Malindi (3°13'S, 40°07'E) and Mombasa (4°04'S, 39°41'E).

During the SW monsoon the coast of Africa can only be reached by taking a roundabout route via the Seychelles. Having passed north of Socotra, the course leads SE and crosses the equator as far west as the winds will permit. Having met the SE trade winds between latitudes 2°S and 4°S, the course can be shaped to pass north of the Seychelles and on to Kenya. Alternatively a stop can be made in the Seychelles and East Africa reached later. See also routes IS42 and IS43 (pages 415 and 416).

IT23 Red Sea to South Indian Ocean

BEST TIME:	September to November
TROPICAL STORMS:	May to June, October (North Indian) November to March (South Indian)
CHARTS:	BA: 4071 US: 71
PILOTS:	BA: 3, 39, 64 US: 170, 171, 172

TRANSEQUATORIAL ROUTES IN THE INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IT23A				
IT231 Mandeb 12°20'N, 43°40'E	IT232 Asir 12°10'N, 50°45'E			
	IT233 Guardafui 12°00'N, 51°30'N			
	IT234 0°00', 54°15'E			
	IT235 Bird 3°40'S, 55°25'E	IT236 Mahé N 4°32'S, 55°28'E	Victoria 4°36.5'S, 55°28'E	1487
Route IT23B				
IT231 Mandeb	IT237 Socotra NE 13°20'N, 54°30'E			
	IT238 0°00', 72°00'E	IT239 Peros W 5°13'S, 71°45'E	Fouquet 5°26.6'S, 71°48.5'E	2276

Although most yacht traffic in the Red Sea is from south to north, every year a number of boats sail to various destinations in the South Indian Ocean by this more direct route from Europe and the Mediterranean.

Similar considerations apply for the first part of the voyage as far as the Horn of Africa as described in route IT22. Passages to the Seychelles during the NE monsoon (route IT23A) benefit from favourable conditions once the Horn of Africa has been left behind. Therefore the early part of the voyage should coincide with the transition period to avoid contrary winds in the Gulf of Aden. From WP IT233, off Cape Guardafui, the direct route crosses the equator at WP IT234. The next WP IT235 lies halfway between Bird and Denis, the northernmost Seychelles Islands. From there, a course can be set for WP IT236, three miles north of the entrance into Port Victoria. Port Control should be contacted on VHF channel 16. Arriving yachts must anchor 3 cables north of Victoria lighthouse.

The SW monsoon provides better conditions for reaching the further island groups in the South Indian Ocean, such as Chagos. On the route from the Red Sea to Chagos and Mauritius (route IT23B), easting is made north of the equator, which is crossed between longitudes 70°E and 72°E. Landfall in Chagos is made at WP IT239, north of Peros Banhos. Southbound from Chagos the same directions apply as for route IS36 (page 412). A September passage from the Red Sea would also benefit from more favourable sailing conditions for the next leg to Mauritius, provided it takes place before the start of the cyclone season in the South Indian Ocean. For boats which have reached the South Indian Ocean towards the end of the year, the next leg of the voyage from either the Seychelles or Chagos to destinations further south should be postponed until after the end of the cyclone season in the South Indian Ocean. See also route IS41 (page 414).

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WINDS AND CURRENTS OF THE SOUTH INDIAN OCEAN

The weather in the tropical zone of the South Indian Ocean is greatly influenced by the advance of the North Indian monsoon south of the equator during the northern winter and its corresponding retreat during summer. Outside of the tropics the weather follows a normal pattern.

The Southeast trade winds

These winds blow on the equatorial side of the counterclockwise circulation of air that exists around the area of high pressure situated in about latitude 30°S. Compared to the other oceans, the South Indian high rarely consists of a single cell and often contains a succession of east moving anticyclonic systems. The trade winds blow on their north side and form a wide belt that stretches across the ocean from Western Australia to Madagascar and the coast of Africa. Between July and September this belt spreads over a very large area and becomes continuous with the SE trade winds of the South Pacific. The entire belt moves north and south throughout the year, its northern limit varying from latitude 2°S in August to latitude 12°S in January. The fluctuation of the southern limit is less pronounced, from 24°S in August to 30°S in January.

The average strength of these trade winds is between 10 and 15 knots in summer and 15 to 20 knots in winter. Over the central region, the wind blows steadily from SE or ESE, especially from May

to September when the SW monsoon is in force north of the equator.

The Northwest monsoon

From November to March, when the ITCZ is situated south of the equator, the NE monsoon of the North Indian Ocean is drawn into the southern hemisphere. Because of the rotation of the earth it is deflected to the left and becomes a NW wind in the northern part of the South Indian Ocean. Winds are generally light and vary considerably both in direction and strength during this period. The weather is often squally and unsettled.

Monsoons of the Indonesian Archipelago

The weather pattern of the Indonesian Archipelago is more seasonal than that of the adjacent areas, which are dominated by the two monsoons. The SE monsoon generally lasts from April to September and is replaced by a NW monsoon from October till March. Though neither of them is very strong, the SE monsoon is the more consistent both in strength and in direction, particularly during July and August when it becomes continuous with the SE trade winds of the South Pacific and Indian Oceans. During the NW monsoon, the direction of the winds is predominantly NW, although their strength and consistency diminish further south.

WINDS AND CURRENTS OF THE SOUTH INDIAN OCEAN

South of latitude 4°S the weather is often squally alternating with calms, variable winds and rain.

Variables

On the polar side of the SE trade wind belt there is an area of light variable winds which coincides with the high pressure region. The axis of this high is situated in about latitude 30°S in winter, moving further south towards latitude 35°S during the summer. The weather varies greatly within this zone, which has similar characteristics to the Horse Latitudes of the Atlantic Ocean.

Westerlies

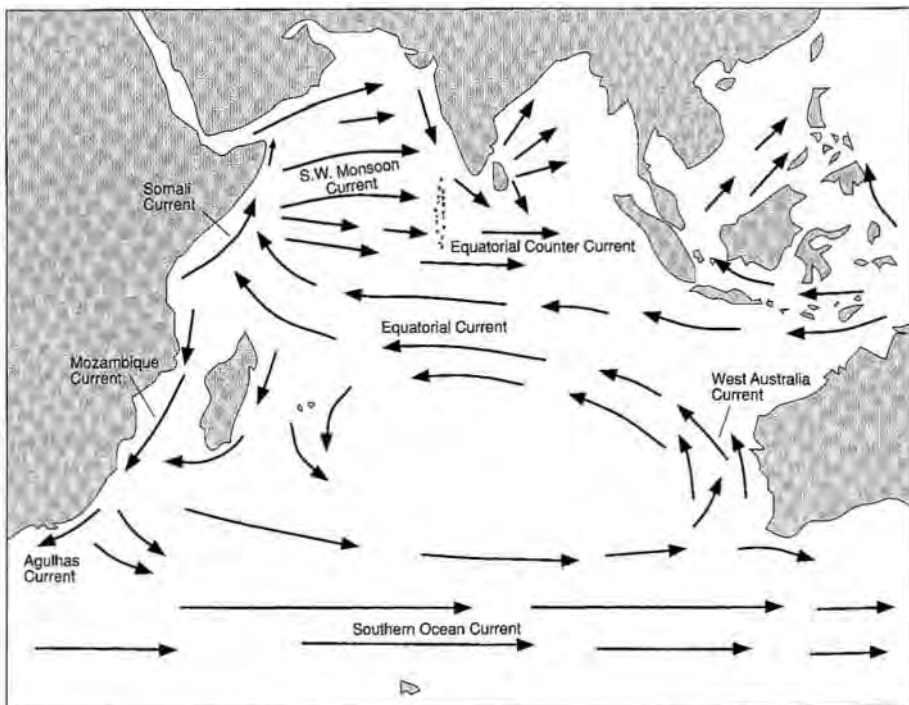
Westerly winds prevail on the polar side of the South Indian Ocean high pressure region. The almost continuous passage of depressions from west to east causes the wind to vary considerably

in direction and strength. Particularly in the higher latitudes of the Roaring Forties and further south, the frequency of gales is high, the weather cold, and the seas rough.

Tropical storms

The cyclone season of the South Indian Ocean lasts from November to May, although December to April are considered to be the dangerous months, as cyclones occur only rarely in November and May. The month with the highest frequency of storms is January.

The willy-willies that affect the coasts of W and NW Australia occur mostly between December and April. They can extend as far as the Timor Sea and Arafura Sea, the latter being also subject to South Pacific cyclones that occasionally hit Northern Australia. Their season is from December to March.



Indian Ocean currents - SW monsoon

Currents

The main surface circulation of the South Indian Ocean is counterclockwise but because of the monsoons of the North Indian Ocean there is only one Equatorial Current. The west flowing Equatorial Current always lies south of the equator, its northern limit varying between latitudes 6°S and 10°S depending on longitude and season. The limit is nearer the equator during the SW monsoon of the North Indian Ocean. On the western side of the ocean, the northern part of the current flows past Madagascar until it reaches the coast of Africa. The current splits in two, one branch following the coast in a northerly direction, the other setting south into the Mozambique Channel. This becomes the Mozambique Current which further south alters its name to that of the Agulhas Current.

The Agulhas Current contains not just the waters of the Mozambique Current but also those of the southern branch of the Equatorial Current. The two currents meet off the coast of Africa in about latitude 28°S from where the combined current sets strongly SW before it passes the Cape of Good Hope into the South Atlantic. One part of the Agulhas Current branches off to the SE where it joins the Southern Ocean Current. The south side of the main circulation of the South Indian Ocean is formed by this current which sets in an E and NE direction. The eastern side of this counterclockwise movement is formed by the West Australian Current, which sets in a NW direction along the west coast of Australia. Eventually it passes into the Equatorial Current, thus completing this giant cycle.

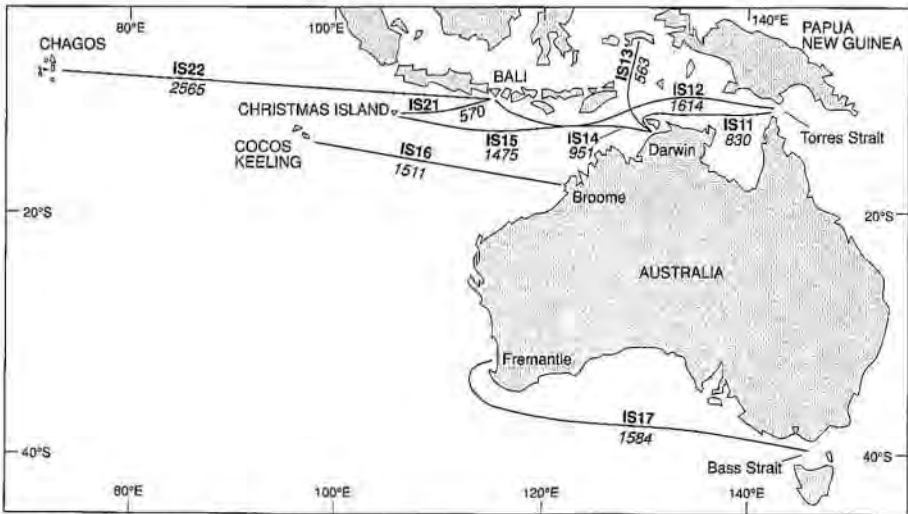
18

ROUTES IN THE SOUTH INDIAN OCEAN

Before the Red Sea route became the more popular way to complete a circumnavigation, most boats used to sail around the Cape of Good Hope on their way to the Atlantic. Nowadays the majority of cruising boats use the northern route and this has resulted in a considerable drop in the number of boats sailing through the South Indian Ocean. Occasionally, boats sailing south through the Red Sea make their way into the South Indian Ocean, but very few go further than Kenya or the Seychelles.

For those who are on a world voyage and plan to take the southern route, there are various factors to be taken into account at the planning stages. The

most important factor is to make the passage around the Cape of Good Hope at the most favourable time, which is during the summer months, from December to March. Such a timing means that the crossing of the South Indian Ocean takes place during the safe season, when no cyclones can be expected south of the equator. The cyclone season in the South Indian Ocean lasts from November to April and passages during this time should be avoided. Although cyclones have been recorded in other months too, notably the cyclone of July 1871, which originated south of Sumatra, it is generally agreed that May to October is a perfectly safe time to cross the South Indian Ocean. As



IS10 Routes from Australia and Indonesia

the South Atlantic is free of cyclones, the onward voyage can start off from Cape Town at practically any time of the year although, as stated earlier, better weather will be found in summer, from December to March. Because of the conveniently placed island groups in the South Indian Ocean, most boats that sail this route do it in stages by calling at Christmas Island, Cocos Keeling, Mauritius, Réunion, and finally Durban. If more time is available a worthwhile detour can be made to the Chagos Archipelago.

A warning has to be given regarding the leg around South Africa. Several circumnavigators have encountered the worst weather of their voyage along this route where a sudden SW gale can create extremely dangerous conditions when it hits the south flowing Agulhas current. Boats have been

knocked down, pooped, and even lost on this stretch, so it is well worth considering the alternatives before becoming committed to this route. Nevertheless, with due care and access to weather information, any well found boat should be able to pass even this hurdle. Some useful tips are given in the relevant sections, mainly in routes IS52 and IS63 (pages 420 and 427).

The island groups scattered across the centre of the Indian Ocean continue to attract a number of cruising boats every year, although their number does not appear to be increasing. On the other hand, more boats are visiting the east coast of Africa, cruising boats being now welcomed or at least tolerated in most African countries bordering on the Indian Ocean.

IS10 ROUTES FROM AUSTRALIA

IS11 <i>Torres Strait to Darwin</i>	400
IS12 <i>Torres Strait to Bali</i>	400
IS13 <i>Darwin to Ambon</i>	402
IS14 <i>Darwin to Bali</i>	402
IS15 <i>Darwin to Christmas Island</i>	403
IS16 <i>Western Australia to Cocos Keeling</i>	404
IS17 <i>Western Australia to Bass Strait</i>	405

Most boats on a world voyage only touch Northern Australia briefly before sailing on to Bali and beyond. Although a cruising permit is required for those wishing to visit the Indonesian archipelago, it is usually possible to make a stop in Benoa on the island of Bali, where the authorities appear to be more tolerant, although some people have had to pay a fine for stopping there without a permit. Benoa is therefore a favourite destination for most boats heading west, both those intending to continue their voyage through the North Indian Ocean and those taking the southern route via the Cape of Good Hope. The routes starting off from

Northern Australia are under the influence of the two monsoons. The SE monsoon, lasting from May until September, has the more pleasant weather as well as favourable winds. The NW monsoon coincides with the cyclone season in the tropical part of the South Indian Ocean, and for this reason few cruising boats stay in the areas affected by tropical storms between late November and March. During that time it may be tempting to sail to the southern part of Australia, which is under the influence of westerly winds for most of the year, but very few cruising boats venture that way.

IS11 Torres Strait to Darwin

BEST TIME:	May to September			
TROPICAL STORMS:	December to March			
CHARTS	BA: 4603 US: 603			
PILOTS	BA: 15, 17 US: 164, 175			
CRUISING GUIDES:	<i>Northern Territory Coast.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS111 Thursday 10°34'S, 142°06.5'E	IS112 Coburg 10°30'S, 132°20'E	[IS113 Dundas] 11°11'S, 131°38'E		635
	IS114 Bathurst 11°10'S, 130°00'E			
	IS115 Fourcroy 11°55'S, 129°55'E	IS116 Charles 12°21'S, 130°42'E	Darwin 12°28'S, 130°51'E	830

During the SE monsoon, from the middle of April to the end of September or early October, winds on this route are mostly favourable. To reach Darwin there is a choice of either taking a short cut through the Van Diemen Gulf or by sailing around the west of Bathurst Island. Because of the strong tidal streams in Dundas and Clarence Straits, and the difficult navigation in the approaches to Darwin, the roundabout route is often quicker, although it is longer. Those who have more time available might prefer to cover the entire distance from the Torres Strait to Darwin in daily stages as there are plenty of good anchorages from Cape Arnhem onward.

Having reached the Arafura Sea, the route to Darwin is the same as that for boats which have followed the inshore route from North Queensland. From WP IS111, west of Thursday Island, at the western end of the Prince of Wales Channel, a westerly course is set which passes close to the north of Booby Island. By setting a course for WP IS112 the route avoids all dangers off the north coast of

Australia. From that point the course can be altered for WP IS113 to pass through Dundas and Clarence Straits. Because of the strong tidal sets and near impossibility of clearing the straits in one daylight period, this route is not recommended. Those who are taking it must allow for the strong currents, which usually set either north or south.

The route around both Melville and Bathurst Islands, although longer, is recommended and is the route most commonly used. If this offshore route is taken, from WP IS112 a course can be set for WP IS114, NW of Bathurst Island. The course should be changed again for WP IS115, off Cape Fourcroy, and finally altered for WP IS116 at the start of the main shipping channel into Darwin. If arriving from outside Australia, boats are required to give at least three hours notice by contacting Darwin Port Authority on VHF channel 16 or HF 2182 kHz. Because of the large tidal range, the easiest place to come alongside is Fishermen's Wharf and this should be requested when arranging clearance.

IS12 Torres Strait to Bali

BEST TIME:	May to September	
TROPICAL STORMS:	December to April	
CHARTS:	BA: 4603 US: 603	
PILOTS	BA: 15, 34, 35 US: 163, 164	

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS121 Thursday 10°34'S, 142°06.5'E	IS122 Melville 10°30'S, 130°00'E			
	IS123 Roti 11°15'S, 123°00'E			
	IS124 Dana 11°00'S, 121°20'E	IS125 Bali E 8°50'S, 115°20'E	Benoa 8°45'S, 115°15'E	1614

For most people the timing of this passage is crucial for the later stages of their voyage. Most boats bound for the South Indian Ocean pass through the Torres Strait between June and August when the best sailing conditions can be expected on this route. After the Arafura Sea has been crossed, the same directions apply as for those setting off from Darwin (route IS14). If one is too late in the season, the best way to avoid encountering a cyclone en route is by sailing along the north coast of the southern Indonesian islands where cyclones are not known to occur. Boats bound for Singapore and the North Indian Ocean have more time at their disposal than those intending to sail around the Cape of Good Hope, so they tend to pass through the Torres Strait later, in September or even early October. This means that they will have missed the best time for the passage to Bali and should be prepared for light winds and calms on that section.

The direct route from Torres Strait to Bali crosses both the Arafura and Timor Seas, where the weather is dominated by the SE and NW monsoons. The trade winds blow strongly from May till August from between SE and SSE and there is a considerable sea. At the start and end of the season the wind is often E backing to ENE. The SE monsoon lasts until the end of October or even November, although SE winds are both lighter and less consistent after the middle of September. It is then followed by variable winds and calms. As the NW monsoon coincides with the cyclone season, passages during this time are best avoided. The seasons in the Timor Sea follow almost the same pattern. Sometimes during the SE monsoon the air is laden with dust brought from the Australian desert and visibility can be poor. In the vicinity of land the winds are generally influenced by the contour of the islands, while in the channels between the islands the winds often blow with great force.

The effect of the tidal streams is felt particularly in the area between Darwin and the Ashmore

Reef. For westgoing boats it is mostly favourable both east and west of Ashmore Reef. West of Ashmore Reef the westerly set can reach 2 knots. A weaker countercurrent, of up to half a knot, may make itself felt for a few hours every day. Further west, the currents in the Lombok Strait run at considerable rates and can produce dangerous conditions in the approaches to Benoa harbour when a strong wind is blowing against the current. During the SE monsoon, the main direction of the current is southerly.

From WP IS121, west of Thursday Island, at the western end of the Prince of Wales Channel, a westerly course can be set which passes close to the north of Booby Island. By setting a course for WP IS122 the route avoids all dangers off the north coast of Australia. From there, the course should be altered for WP IS123, 20 miles south of Roti Island, SW of Timor. This course stays well to the north of the oil drilling area around 12°00'S, 125°00'E and also avoids the Hibernia and Ashmore reefs. Karnt Shoals will be crossed en route, but the area presents no known dangers. Making a detour through Roti Channel, between Roti and Timor, is not recommended as currents are very strong.

From WP IS123 the route then goes to WP IS124, south of Dana Island. The course can then be altered for WP IS125, SW of Nusa Penida, in the approaches to Benoa harbour, Bali's main port. A buoyed channel leads through the reef, which is clearly visible in daylight. Entering at night is not recommended as often the lights are not working and the leading lights can be confusing. Because of the strong currents it is preferable to spend the night out at sea, although with care it may be possible to anchor for the night near the landfall buoy if there is not too much swell.

The opening of the new Bali International Marina in 1994 has considerably improved docking facilities in Benoa harbour. The marina is located in the NE of the harbour. Anchoring space is

ROUTES IN THE SOUTH INDIAN OCEAN

rather limited and is restricted to the area south of the main wharf. Entry formalities are completed at

the various offices lining the causeway leading into Denpasar.

IS13 Darwin to Ambon

BEST TIME:	May to September			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 4603 US: 603			
PILOTS:	BA: 17, 35 US: 164, 175			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS131 Charles 12°21'S, 130°42'E	IS132 Fourcroy 11°55'S, 129°50'E			
	IS133 Babar 8°10'S, 129°20'E	IS134 Nusanive 3°50'S, 128°07'E	Ambon 3°42'S, 128°10'E	563

This route is used mainly by boats taking part in the annual Darwin to Ambon Race. Participants in this event, which is organised by the Darwin Sailing Club, automatically obtain the compulsory cruising permit for Indonesia. For those in possession of a cruising permit, this route allows one to start exploring that vast archipelago in one of its most interesting parts. The best time to head north is at the height of the SE monsoon, when the weather is settled and favourable winds can be

expected for most of the way.

Taking as a departure point WP IS131 at the start of the main shipping channel into Darwin, a course can be set for WP IS132 off Point Fourcroy. The course then runs almost due north to WP IS133 in Selat Babar, the passage between Babar and Sermata Islands. From there, the route across the Banda Sea avoids all dangers by setting course for WP IS134 off Nusanive, at the entrance into Ambon (Yos Sudarso).

IS14 Darwin to Bali

BEST TIME:	May to September			
TROPICAL STORMS:	December to April			
CHARTS:	BA: 4603 US: 603			
PILOTS:	BA: 17, 34 US: 163, 175			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IS14A				
IS141 Charles 12°21'S, 130°42'E	IS142 Challis 12°15'S, 125°00'E			
	IS143 Hibernia 12°07'S, 123°23'E	IS145 Bali E 8°50'S, 115°20'E	Benoa 8°45'S, 115°15'E	951
Route IS14B				
IS141 Charles	IS144 11°30'S, 124°30'E	IS145 Bali E	Benoa	939

This route leads south of all Indonesian islands. The only dangers on the direct route are the Hibernia and Ashmore reefs to the south of Timor Island. The passage can be broken at Ashmore Reef, especially if the winds are light. The green reflection or blink of the shallow water can often be seen in the sky long before the actual reef is sighted. Currents in the area are usually strong (see also route IS12). The best recommended anchorage is in the NW corner of the reef, off a small cay. In good visibility it is fairly easy to thread one's way among the coral heads. The reef is often visited by Indonesian fishermen.

From WP IS141, outside the entrance into the main shipping channel into Darwin, the direct route (IS14A) leads to WP IS142. There are oil platforms in the area 12°00'S, 125°00'E, which should be avoided if possible. The course should then be altered for WP IS143 to pass halfway between Hibernia and Ashmore Reefs. The alternative is to take a more northerly course on leaving Darwin so as to pass to the north of both the oilfields and the above two reefs (route IS14B). In this case from WP IS141 the course should be set for WP IS144. Although the oil platforms are easily seen, both in day time and at night, one should not pass too close to them so as not to get entangled in the anchoring cables which stretch a long way away from the platform and are not easily seen. From either of the above waypoints IS143 or IS144 it is then a clear run to WP IS145, SW of Nusa Penida, in the approaches to Benoa Harbour.

During the SE monsoon the prevailing winds both in the Arafura and Timor Seas are from the SE or E. The only difficulty likely to be encountered are the very strong currents in the Lombok Strait in the approaches to Benoa harbour. Because of the currents and the meandering entrance channel to Benoa, this port should only be entered in daylight. A strong current will be encountered SW of Lombok where the ocean current setting along the southern coasts of the islands meets the outflow-

ing current from the Lombok Channel, separating the islands of Lombok and Bali. The area abounds with overfalls and rough breaking seas and can be quite dangerous in strong winds, which fortunately do not occur too often. Also one should be prepared for ghost readings on the depth sounder with sudden shallow readings caused by the different layers of water.

The best passages on this route are made during July and August, when the SE winds are most regular. At the beginning and especially at the end of the SE monsoon the winds become irregular, SSW winds sometimes being encountered in the Timor Sea in October. The south side of the Indonesian islands should not be approached until close to Bali on account of contrary currents. During April, and also in November and December, winds on this route are often light and there are prolonged periods of calms.

From outside Benoa, a buoyed channel leads through the reef, which is clearly visible in daylight. Entering the harbour at night is not recommended as often the lights are not working and the leading lights can be confusing. Because of the strong currents it is preferable to spend the night out at sea, although with care it may be possible to anchor for the night near the landfall buoy if there is not too much swell. The opening of the new Bali International Marina in 1994 has considerably improved docking facilities in Benoa harbour. The marina is located in the NE part of the harbour. Anchoring space is rather limited and is restricted to the area south of the main wharf. Clearance formalities are completed at the various offices lining the causeway leading to Denpasar. The marina office may help with the clearance formalities. A cruising permit is required for all sailing boats wishing to visit Indonesia. However, on some occasions boats arriving in Benoa without a permit have been allowed by the Harbour Master to stay a few days for reprovisioning.

IS15 Darwin to Christmas Island

BEST TIME:	May to September
TROPICAL STORMS:	December to April
CHARTS:	BA: 4803, 4070 US: 524
PILOTS	BA: 17, 34 US: 163, 175

ROUTES IN THE SOUTH INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS151 Charles 12°21'S, 130°42'E	IS152 Challis 12°15'S, 125°00'E			
	IS153 Hibernia 12°07'S, 123°23'E	IS154 Christmas 10°28'S, 105°46'E	Flying Fish 10°25'S, 105°43'E	1475

This is normally a fast sail in 15–25 knot SE winds if the passage is timed for July or August. If it is left later than the first half of September, the trade winds can be less reliable and there is a greater chance of calms and light variable winds. As far as Ashmore reef, the same directions apply as those for route IS14. In strong winds or poor visibility it might be safer to avoid both the oil platforms in approximately 12°00'S, 125°00'E and the two reefs to the west of them by taking a route which passes well to the south or north of the area. From WP IS153 between Ashmore and Hibernia reefs, a direct course leads outside all dangers to WP IS154, two miles east of Christmas Island. The best anchorage is at Flying Fish Cove. Boats should fly the Q flag on arrival and will be visited by customs. The rest of entry formalities will be completed ashore. As the island is an Australian territory, similar visa requirements apply as in Australia itself and those

arriving without a visa may not be allowed to stay. The strict Australian food quarantine regulations are not applied as rigorously as on the mainland.

At Christmas Island the SE trade winds blow almost continuously from May until December, but in the first months of the year, when the NW monsoon is established in the area to the north of the island, the NW monsoon makes itself felt with occasional heavy rains, strong winds, and thunderstorms. In January and February winds can blow strongly from the west or north. The island is normally spared the cyclones which affect the area between it and North West Australia.

The anchorage at Christmas Island can become uncomfortable when the trade winds are at their strongest, a good incentive to up anchor and sail the 500 miles to Cocos Keeling, where there is a choice of safe and beautiful anchorages.

IS16 Western Australia to Cocos Keeling

BEST TIME:	May to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 70			
PILOTS:	BA: 17, 44			
	US: 174, 175			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS161 Broome 18°00'S, 122°05'E	IS162 Mermald 16°45'S, 119°40'E	IS163 Keeling E 12°05'S, 97°00'E	Direction 12°05.5'S, 96°52.5'E	1511

Tropical storms affect the area crossed by this route during the summer months, from the middle of November to April, and a passage during this period is therefore not recommended. Better sailing conditions usually occur in May–June and September–October, when the SE trade winds either have not reached their full strength or have started to diminish. Occasionally strong squalls

have been encountered on this run, with sudden winds of up to 50 knots.

A good port of departure from Western Australia is Broome. On leaving the port one should move immediately offshore as the reefs north of Gantheaume Point are reported to be more extensive than charted. From WP IS161 a course can be set for WP IS162, north of Mermaid Reef, so that all

dangers south of that reef are left to port. The direct route leads to WP IS163, six miles east of Direction Island on South Cocos. As the only powerful light is at the airport, on the SW side of the lagoon, the atoll should be approached carefully at night. The entrance into the lagoon at South Cocos is between Horsburgh and Direction Island. The recommended anchorage for yachts is south of Direction Island and is reached by leaving Direction Island

1/4 mile to port. A marker shows where to turn to port to reach the yellow quarantine buoy. Flight Services should be called on VHF channel 16 and customs, immigration, and quarantine officers will come to the boat. Strict food quarantine regulations apply here and only Australian food products, labelled as such, will be allowed. Australian visas are compulsory.

IS17 Western Australia to Bass Strait

BEST TIME:	December to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4709, 4601 US: 709, 601			
PILOTS:	BA: 13, 14, 17 US: 127, 175			
CRUISING GUIDES:	<i>Circumnavigating Australia's Coastline.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS171 Garden 32°06'S, 115°38'E	IS172 Naturaliste 33°40'S, 114°35'E IS173 Leeuwin 34°40'S, 115°00'E IS174 35°30'S, 117°00'E	IS175 King 39°25'S, 144°00'E		1584

Sailing along the south of Australia can be done either in one long leg to Bass Strait or in easy coastal stages by stopping at various places en route. The offshore route has the advantage of more constant winds as the Great Australian Bight is renowned for its baffling winds in summer. If the transocean route from South Africa has been left for a detour to Western Australia, it is advisable to regain that route after rounding Cape Leeuwin. Extreme caution must be exercised when approaching Bass Strait from westward, especially at night or in bad visibility, because of the strong currents that sweep through the strait.

Leaving Fremantle at WP IS171, NW of Garden Island, the course runs down the west coast of Australia to WP IS172, off Cape Naturaliste. The

next course alteration, to WP IS173, takes the route south of Cape Leeuwin. From WP IS174 a direct course can be set across the Australian Bight to WP IS175, north of King Island, in the western approaches to Bass Strait.

For vessels bound for Sydney direct from either Western Australia or even Cape Town, the passage through Bass Strait is only recommended in winter. During the summer better conditions are met by keeping south of Tasmania. After passing Tasmania, the course should only turn north after longitude 155°E has been passed, so as to avoid the full effect of the south-setting Australian current and to approach Sydney from offshore where the current is much weaker and the winds steadier.

IS20 ROUTES FROM INDONESIA

IS21 *Bali to Christmas Island*

406

IS22 *Bali to Chagos*

407

Bali occupies a unique position on the world sailing routes because of its convenient position astride the main cruising route around the world. Since it is also a very attractive island with lots to see and do, Bali is rarely bypassed by anyone sailing through the area. There are only three main routes out of Bali, one destined for the islands of the South Indian Ocean, a direct route to Sri Lanka south of Sumatra, and one heading across the equator to Singapore. The first of these routes is used by boats bound for South Africa as well as those bound for the Red Sea by a more indirect route via the Seychelles and possibly East Africa. A small number of boats also use Bali as a departure point for ports in Northern and Western Australia. Because of the prevailing winds these routes are best sailed at the change of seasons, in April or October. At the present time the most frequented route out of Bali is the transequatorial route to Singapore IT11 (page 382).

The area around Bali is under the influence of the NW and SE monsoons, although the high mountains and irregular coastline cause significant modifications to local weather conditions and the high Indonesian islands often block the monsoons completely. Strong winds are quite rare, although some squalls can be violent, and as these often develop suddenly they can be quite dangerous to those caught unaware. Tropical cyclones are also very rare, the only area affected being near Timor and Flores Islands, with less than one storm per year, in the period from January to April.

Although conditions may vary locally as the Indonesian archipelago stretches over a considerable portion of the ocean, generally the SE monsoon lasts from April to October and the NW monsoon from November to March. Among the islands to the east of Java, which includes Bali, the SE monsoon blows strongly from the ESE, being at its height during June, July, and August. The NW monsoon sets in about December and attains its maximum strength in January. The NW monsoon is the wet season, with the highest rainfall in December and January, when squalls are most frequent.

Along the northern shores of the higher islands, winds in both seasons are steadier during the night hours, being influenced by land and sea breezes. For this reason most Indonesian sailing craft tend to make their passages at night, keeping close to the shore. Land and sea breezes are very important for those planning to sail in these waters and are very evident along the coasts of larger islands, although weaker on smaller islands. These breezes are at their strongest when the monsoons are weak. The change from land to sea breeze occurs in the middle of the morning, while that from sea to land breeze occurs shortly after sunset near mountainous coasts and later in the night near flat country. The force of the breeze decreases with distance from the shore but can be felt up to 20 miles offshore. The breezes are strongest near mountainous country sloping gradually to the sea and are also stronger on clear days.

IS21 *Bali to Christmas Island*

BEST TIME:	May to October
TROPICAL STORMS:	December to April
CHARTS:	BA: 4071
	US: 70
PILOTS:	BA: 34
	US: 163, 170

WAYPOINTS:

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS211 Bali S 8°55'S, 115°12'E		IS212 Christmas 10°28'S, 105°46'E	Flying Fish 10°25'S, 105°49'E	570

Generally pleasant sailing conditions can be expected during the months when the majority of boats make this passage, which is August and September. The trade winds blow strongly in July and August, but sometimes there are years when the trade winds fail to be established and winds are either very light or can blow at gale force for several days. At Christmas Island the SE trade winds blow almost continuously from May until December, but in the first months of the year, when the NW monsoon is established in the area to the north of the island, the NW monsoon makes itself felt with occasional heavy rains, strong winds, and thunderstorms. In January and February winds can

blow strongly from the west or north. The island is normally spared the cyclones which affect the area between it and North West Australia.

From WP IS211, south of Benoa harbour, a direct route runs south of Java and Sumatra to WP IS212, two miles east of Christmas Island. The best anchorage is at Flying Fish Cove. Boats should fly the Q flag on arrival and will be visited by customs. The rest of the entry formalities will be completed ashore. As the island is an Australian territory, similar visa requirements apply as in Australia itself and those arriving without a visa may not be allowed to stay. The strict Australian food quarantine regulations may also apply.

IS22 *Bali to Chagos*

BEST TIME:	May to October			
TROPICAL STORMS:	None			
CHARTS:	BA: 4071			
	US: 70			
PILOTS:	BA: 34, 39			
	US: 163, 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS221 Bali S 8°55'S, 115°12'E	IS222 Blenheim 5°20'S, 72°35'E	IS223 Salomon 5°17.5'S, 72°15'E	Takamaka 5°20'S, 72°16'E	2565

This more direct route is preferred by those who are not tempted by the usual detour via Christmas and Cocos Keeling Islands. The route from Bali runs slightly north of latitude 10°S where good sailing conditions can be expected throughout the SE monsoon and the risk of cyclones is almost nonexistent. The route is joined south of Sumatra by boats that have reached the Indian Ocean through the Sunda Strait. Although the route from Bali is under the general influence of the SE trade winds, strong winds from the southern quarter are not unusual during the winter months and they are often accompanied by a big swell. Rough seas have been encountered especially around longitude 90°E, the disturbance being apparently caused by a submarine mountain ridge.

Chagos enjoys South Indian Ocean weather with SE trade winds from April to November, but as the islands are close to the upper limit of the trade winds, they can be light and more variable. From December to March, when the ITCZ moves south, the NE monsoon is deflected south of the equator

to give a NW flow of wind. The NW monsoon is not so reliable, brings rain, and blows most strongly in January and February. The period of the NW monsoon is also the cyclone season, but these storms normally form south of Chagos and move in a southerly direction. They almost never track north towards the equator.

From WP IS221, south of Benoa harbour, a direct route runs south of Java and Sumatra to WP IS222, 10 miles SE of Blenheim Reef. From there a course can be set for WP IS223 close to the NW pass leading into the lagoon at Salomon Island. The lagoon is entered through the NW pass and the recommended anchorage is off Takamaka Island, on the east side of the lagoon. Because of the extensive reefs and absence of lights, except at Diego Garcia itself, the area should be approached with great care. Special regulations apply to visitors to Diego Garcia, which is a military base leased by the UK to the USA. Only genuine emergency stops at Diego Garcia are allowed, although the presence of cruising boats is tolerated in the other islands.

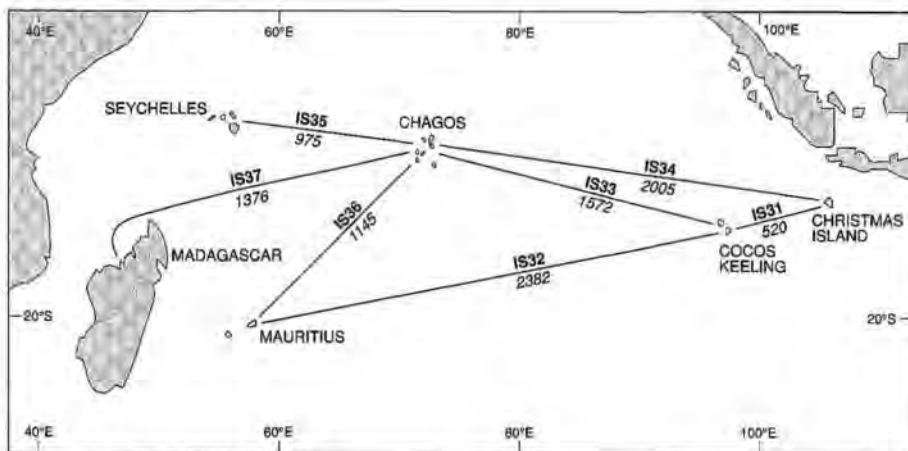
IS30 ROUTES IN THE CENTRAL INDIAN OCEAN

IS31	<i>Christmas Island to Cocos Keeling</i>	409
IS32	<i>Cocos Keeling to Mauritius</i>	409
IS33	<i>Cocos Keeling to Chagos</i>	410
IS34	<i>Christmas Island to Chagos</i>	411
IS35	<i>Chagos to Seychelles</i>	411
IS36	<i>Chagos to Mauritius</i>	412
IS37	<i>Chagos to Madagascar</i>	412

The islands of the South Indian Ocean provide one of the most attractive cruising grounds in the world, yet the number of boats that visit them is very small. There are several reasons for this: the remoteness of the islands from the major cruising routes, the restrictions imposed on the movement of cruising boats in some of the islands, either by civil or military authorities, and the fact that by the time they have reached the Indian Ocean most sailors seem to have run out of time.

The routes linking the islands with each other, as well as with neighbouring Africa, are mostly under the influence of the SE trade winds, which last from

April until November. The best sailing season is the southern winter, from June to September. In some of the islands in lower latitudes, such as Chagos or the Seychelles, the SE trade winds can be light and more variable, especially outside the peak winter months. From December to March, when the ITCZ moves south, the NE monsoon in the North Indian Ocean is deflected south of the equator and provides a flow of NW winds. The weather in summer is less attractive, a hot and humid NW monsoon in the northwest and the danger of tropical cyclones in the south.



IS30 Routes in the Central Indian Ocean

IS31 *Christmas Island to Cocos Keeling*

BEST TIME:	May to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 70			
PILOTS:	BA: 34, 44			
	US: 163, 174			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS311 Christmas W 10°25'S, 105°33'E		IS312 Keeling E 12°05'S, 97°00'E	Direction 12°05.5'S, 96°52.5'E	520

During the SE trade wind season the winds on this route are almost always favourable. Occasionally the trades cease to blow for a day, but periods of calms or light winds are usually short lived. The one unpleasant feature of this route is the large swell from the south or southwest. Because the wind blows from the SE and the swell is almost at right angles to the direction of the wind, the motion can be very uncomfortable and it can also be tough on selfsteering gears, which have sometimes broken under the strain of the violent motion.

A direct route links these two Australian possessions. From WP IS311, west of Christmas Island, a course should be set for WP IS312, six miles east of Direction Island on South Cocos. As the only powerful light is at the airport, on the SW side of the lagoon, the atoll should be approached

carefully at night. The entrance into the large lagoon is west of Direction Island and the recommended anchorage is in its lee. To reach the anchorage, Direction Island is left 1/4 mile to port. A marker shows where to turn to port to reach the yellow quarantine buoy where arriving yachts should anchor and wait for clearance. The Q flag must be flown until cleared. Flight Services should be called on VHF channel 16 and customs, immigration, and quarantine officers will come to the boat. Strict food quarantine regulations apply and only Australian food products, labelled as such, will be allowed. Occasionally, fresh produce taken on board at Christmas Island has been confiscated at Cocos Keeling. Australian visas are compulsory.

IS32 *Cocos Keeling to Mauritius*

BEST TIME:	May to June, September to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 70			
PILOTS:	BA: 39, 44			
	US: 170, 171, 174			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IS32A				
IS321 Keeling W 12°04'S, 96°49'E		IS322 Mauritius N 19°48'S, 57°37'E	Port Louis 20°09'S, 57°29'E	2382
Route IS32B				
IS321 Keeling W		IS323 Rodriguez 19°37'S, 63°25'E	Port Mathurin 19°41'S, 63°25'E	2037

ROUTES IN THE SOUTH INDIAN OCEAN

This long haul across the width of the South Indian Ocean has the full benefit of the SE trade winds during the southern winter months, from May to October. These winds often blow at 20 to 25 knots for days on end and sometimes reach gale force. The pleasure of a fast passage is often marred by an uncomfortable cross swell which rolls in relentlessly from the Southern Ocean. The weather is generally rougher in the proximity of Cocos Keeling and both winds and seas usually moderate after the halfway mark to Mauritius has been passed. The trade winds continue to blow consistently in October, but the weather becomes more squally and the chances of encountering gale force winds are greater. Although it would appear that by making a sweep to the north it would be possible to avoid the area with the highest frequency of gale force winds, this does not seem to be the case. Boats that have arrived in Mauritius by a more roundabout way have encountered equally rough conditions as those which sailed a direct course.

Boats normally leave the lagoon at South Cocos by the Northern Entrance, although in good light and if there is not a large swell, it is possible to thread one's way SW across the lagoon and leave

by the Western Entrance. The Northern Entrance, however, is easier and therefore safer. Having left Horsburgh Island to port, from WP IS321, NW of that island, a direct course (route IS32A) can be set for WP IS322, three miles north of Round Island north of Mauritius. From there the course should be altered to sail along the NW coast to Port Louis, the island's main harbour. The Port Authority must be contacted on VHF channel 16 to obtain permission to enter the port. Arriving yachts are normally directed to the customs dock.

Some boats break the journey to Mauritius by calling in at Rodriguez (route IS32B), where cruising boats are welcome and local boats sometimes sail out to guide the visitors in. If a stop there is intended, from Cocos Keeling the course should be set for WP IS323, off the north point of the island. The main harbour is at Port Mathurin, where boats have to clear in. Although the island belongs to Mauritius, the clearance is only valid locally and one must clear in again on arrival in Mauritius. The winds between the two islands are often very strong, especially at the peak of the SE trade winds, in July and August, when winds of up to 50 knots have been reported.

IS33 Cocos Keeling to Chagos

BEST TIME:	May to June, September to October				
TROPICAL STORMS:	November to April				
CHARTS:	BA: 4070 US: 70				
PILOTS:	BA: 39, 44 US: 170, 171, 174				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
IS331 Keeling W 12°04'S, 96°49'E	IS332 Blenheim 5°20'S, 72°35'E	IS333 Salomon 5°17.5'S, 72°15'E	Takamaka 5°20'S, 72°16'E	1572	

For the duration of the SE monsoon both winds and current are favourable along this route. Occasionally in July and August the trade winds blow very strongly south of latitude 10°S, but these conditions are less common further north. Better sailing conditions are often encountered at the beginning and end of the SE monsoon, September being considered to be the best month. During the NE monsoon of the North Indian Ocean, the influence of this monsoon makes itself felt as far south as latitude 10°S. Between January and April

winds are less constant in direction and usually have a northerly component. The weather in the transition period between monsoons is often unsettled, with overcast skies and rain squalls, often accompanied by violent winds.

Because of the restrictions that apply to boats arriving in Diego Garcia it is better to make straight for the islands on the north side of the archipelago, such as Salomon or Peros Banhos, unless an emergency call at Diego Garcia can be justified.

Having left the lagoon at Cocos Keeling through

the North Entrance, from WP IS331, NW of Horsburgh Island, a direct course can be set for WP IS332, 10 miles SE of Blenheim Reef. From there the course can be altered for WP IS333 close to the NW

pass leading into the lagoon at Salomon Island. Because of the extensive reefs and absence of lights, except at Diego Garcia itself, the area should be approached with great care.

IS34 Christmas Island to Chagos

BEST TIME:	May to September			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 70			
PILOTS:	BA: 34, 44			
	US: 163, 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS341 Christmas W 10°25'S, 105°33'E	IS342 Blenheim 5°20'S, 72°35'E	IS343 Salomon 5°17.5'S, 72°15'E	Takamaka 5°20'S, 72°16'E	2005

There are few boats which bypass Cocos Keeling Island and sail direct from Christmas Island to Chagos. However, in unsettled weather it might be preferable to sail a direct course, rather than make the detour to the south. The winter months of May to September provide both favourable winds and current. The weather on this route is similar to that on routes IS31 and IS33 to which reference should be made. It should also be noted that Diego Garcia is a restricted military island and anchorage must be sought elsewhere in the Chagos Archipelago.

From WP IS341, west of Christmas Island, a direct course leads to WP IS342, 10 miles SE of Blenheim Reef. From there the course can be altered for any of the islands and atolls in this uninhabited archipelago. The Salomon Islands, Peros Banhos, and Egmont Islands are all popular with cruising boats. The most convenient anchorage is in Salomon lagoon. To reach it, from WP IS342 the course should be altered for WP IS343, close to the pass leading into the lagoon.

IS35 Chagos to Seychelles

BEST TIME:	May to September			
TROPICAL STORMS:	None			
CHARTS:	BA: 4702			
	US: 702			
PILOTS:	BA: 39			
	US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS351 Peros W 5°13'S, 71°45'E	IS352 Frigate 4°38'S, 56°00'E	IS353 Mahé E 4°35'S, 55°30'E	Victoria 4°36.6'S, 55°28'E	975

The SE monsoon should be favoured for this route which has the best weather between May and September, when both winds and current are favourable. Near perfect sailing conditions have been encountered by boats making this passage in

May and June. Later in the year the NE monsoon starts making itself felt in the South Indian Ocean, the transitional months of October and November being associated with light winds, calm seas, and the occasional violent rain squall.

ROUTES IN THE SOUTH INDIAN OCEAN

A good place to leave from Chagos is Peros Banhos. Having left the large lagoon through the NW Pass, from WP IS351, north of Diamond Island, the route runs due west along parallel 5°S. The route is clear of dangers, but the Seychelles should be approached with caution because of the rocks and reefs that surround them. The safest approach is to make landfall at Frigate Island by setting course for WP IS352, five miles SE of that island. From there

the course can be altered for WP IS353, north of St Anne Island in the approaches to Port Victoria, the capital located on Mahé, the main island of the group. Beacons lead through the reefs into the harbour. Having contacted the Port Authority on VHF channel 16, arriving yachts must anchor in the quarantine area north of Victoria lighthouse where they will be boarded for clearance.

IS36 Chagos to Mauritius

BEST TIME:	May to June, September to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4702 US: 702			
PILOTS:	BA: 39 US: 170, 171			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
IS361 Egmont 6°38'S, 71°19'E		IS362 Mauritius N 19°48'S, 57°37'E	Port Louis 20°09'S, 57°29'E	1145

A windward passage during most of the SE trade wind season, this route can benefit from better winds at the beginning and end of winter, when the trade winds do not have too much south in them. It has been noticed that the stronger the SE trade winds, the more south there is in them and vice versa. Therefore it may be worth avoiding this route in July and August when the trade winds are known to be quite blustery. Boats that have made this passage in October have reported pleasant sailing conditions. If the winds are easterly, it is possible to call first at Rodriguez Island before continuing to Mauritius (see route IS32).

A good point of departure are the Egmont

Islands, in the SE part of the Chagos archipelago. From WP IS361, a direct course may be set for Mauritius. The route passes well to the east of Cargados Carajos Reef, which belongs to Mauritius. Boats which have not yet cleared into Mauritius are not allowed to stop there without prior permission. The route leads to WP IS362, three miles north of Round Island north of Mauritius. From there the course should be altered to sail along the NW coast to Port Louis, the island's main harbour. The Port Authority must be contacted on VHF channel 16 for permission to enter the port. Arriving yachts are normally directed to the customs dock.

IS37 Chagos to Madagascar

BEST TIME:	May to June, September to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4702 US: 702			
PILOTS:	BA: 39 US: 170, 171			

IS40 ROUTES IN THE WESTERN INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS371 Egmont 6°38'S, 71°19'E	IS372 Saya 10°00'S, 60°00'E			
	IS373 Malhu 11°30'S, 55°00'E	IS374 Ambre N 11°50'S, 49°15'E	Antseranana 12°16'S, 49°18'E	1876

Although most cruising boats bound for South Africa continue to sail the traditional route via Mauritius, a route that goes through the Mozambique Channel is gathering popularity, especially as one is able to visit Madagascar on the way. From WP IS371, north of the Egmont Islands, in the SW part of the Chagos archipelago, the direct route to Cap d'Ambre, the northern point of Madagascar, cuts right through Saya de Malha Bank, an area of strong tidal sets and rips. To avoid the worst part of this area, and also to approach Madagascar from a better angle, an initial course

should be set for WP IS372 and then WP IS373. The main reason for using the latter waypoint is to sail most of the remaining distance on the latitude of Cap d'Ambre. The purpose of this is that as the SE trade winds hit the mass of Madagascar, their direction becomes more southerly, therefore approaching the island from the east, rather than NE, ensures that the winds are met at a better angle. From WP IS373 a course can be set for WP IS374, six miles north of Cap d'Ambre. The nearest port of entry is at Antseranana, on the island's west coast.

IS40 ROUTES IN THE WESTERN INDIAN OCEAN

IS41 <i>Seychelles to Mauritius</i>	414
IS42 <i>Seychelles to Comoros</i>	415
IS43 <i>Seychelles to Comoros</i>	416
IS44 <i>Comoros to East Africa</i>	416
IS45 <i>Comoros to Seychelles</i>	417
IS46 <i>Comoros to South Africa</i>	418

In spite of its many attractions, the western part of the South Indian Ocean is visited by few cruising boats. The two island groups, the Seychelles and the Comoros, are part of a triangular cruising route between the African mainland and these offshore islands. The area north of Madagascar is peppered with reefs and small islands, which are a diver's paradise, but used to be a navigator's nightmare until satellite navigation took most of those worries away. Nevertheless, the area should still be approached with great caution as the positions of many islands and reefs are incorrectly charted and therefore do not agree with coordinates obtained by GPS.

Weather conditions throughout the area bear a certain similarity. In the Seychelles the SE trade winds prevail from May to the middle of October, although in some years they are not established



IS40 Routes in the Western Indian Ocean

ROUTES IN THE SOUTH INDIAN OCEAN

until June or even July. The SE season is the fine weather period, with steady SE winds blowing in July, August, and September. In November the changeover to the NW monsoon is marked by heavy squalls and rain. The NW monsoon is the wet season and lasts until April. During these months winds blow from the NW, W, or WSW. Cyclones are practically unknown and if they do pass through the vicinity it is usually around 200 miles to the south of Mahé.

In the Comoros, the NW monsoon commences at

the end of October or early in November and lasts until April. This is the hot and rainy season, which is characterised by irregular winds and squally weather. In the SE season winds blow more regularly, although never too strong, their strength being broken by the mass of neighbouring Madagascar. The changeover between the seasons is marked by calms, variable winds, and squally weather. Occasionally cyclones reach the Comoro Islands, the months with the highest risk being February to April.

IS41 *Seychelles to Mauritius*

BEST TIME:	May to June, October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 702			
PILOTS:	BA: 39			
	US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS411 Mahé SE 4°40'S, 55°33.5'E	IS412 Agalega 10°00'S, 56°10'E			
	IS413 15°00'S, 56°45'E	IS414 Mauritius NW 20°08'S, 57°26'E	Port Louis 20°09'S, 57°29'E	938

A windward passage for most of the year, the timing of this route offers few alternatives, as the season when northerly winds are more frequent also coincides with the cyclone season. If the passage is made during the SE trade wind season, but outside of the blustery months of July and August, better conditions can be expected in May and early June, or in October, two periods when the winds can be more easterly.

In good light it is possible to use Cerf Passage when leaving Mahé from Port Victoria. Otherwise it is safer to use the main shipping channel. From WP IS411, at the exit of Cerf Passage, a direct course leads to Mauritius passing close to the west of Coetivy Island, which should be approached with care as it has been reported to lie some 3 miles further west than its charted position. Similar caution should be exercised when passing west of Agalega Island, which is also close to the direct

route. To stay clear of all these dangers, on departure from WP IS411 the course should be set to pass through two intermediate waypoints, IS412 and IS413, so as to stay at least 20 miles west of Agalega and surrounding dangers. From WP IS413 the course can be altered for WP IS414 in the approach to Port Louis, the capital and main port. The Port Authority must be contacted on VHF channel 16 to obtain permission to enter the port. Arriving yachts are normally directed to the customs dock.

Boats occasionally break this passage at the Cargados Carajos Reef, which is close enough to the direct route to warrant the detour. Such a detour is made even more tempting if strong headwinds are encountered, which is often the case. The reef belongs to Mauritius and is visited by fishing boats from that island. Cruising boats are not supposed to stop there unless sheltering from bad weather.

IS42 *Seychelles to Comoros*

BEST TIME:	April to May			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 72			
PILOTS:	BA: 39			
	US: 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IS42A				
IS420 Mahé N	IS421 Descroches NE			
4°32'S, 55°26'E	5°38'S, 53°44'E			
	IS422 Descroches SW			
	5°42'S, 53°37'E			
	IS423 Boudeuse			
	6°00'S, 52°51'E			
	[IS424 Alphonse]			
	6°30'S, 53°00'E			
	IS425 Cosmoledo	IS426 Comoro N	Moroni	854
	10°00'S, 46°45'E	11°25'S, 43°15'E	11°42'S, 43°15'E	
		IS427 Anjouan NW	Mutsamudu	803
		12°08'S, 44°25'E	12°10'S, 44°24'E	
Route IS42B				
IS420 Mahé N	IS421 Descroches NE			
	IS422 Descroches SW			
	IS423 Boudeuse			
	IS428 Astrove	IS429 Mayotte NE	Dzaoudzi	853
	10°00'S, 45°20'E	12°44'S, 45°15'E	12°47'S, 45°15'E	

Because of the various island groups and numerous reefs encountered on this route, and also the likelihood of strong headwinds at the height of the SE monsoon, when the direction of the wind becomes increasingly southerly as the Comoros are approached, most boats break up this passage into shorter stages by stopping at some of the islands en route. Because winds over 20 knots are the order of the day at the height of the SE trade wind season, the passage should be undertaken at the start of the season, although in April there is still the small risk of a late cyclone.

After leaving Port Victoria on the main island of Mahé, the course goes around the north of the island to WP IS420, north of North Point. From there the course can be set for WP IS421, NE of Descroches Island, one of the Amirante Islands, which has a well protected anchorage on its west side used by boats making this passage. From WP IS422, SW of Descroches Island, the route crosses

the Amirante Bank to WP IS423, north of Boudeuse Cay. This section should only be done in good light; under any other conditions it would be safer to make for WP IS424 to pass east of Marie Louise Island and north of Alphonse Island.

Having left behind the last of these islands belonging to the Seychelles, there is a choice of routes to reach either the Comoros or Mayotte. Although the latter belongs geographically to the same group, as a French territory it is separate from the other Comoros. The direct route for the Comoros (IS42A) is sailed by setting course from WP IS423 for WP IS425. This route passes between Cosmoledo Group and Assumption Island before the course is altered for WP IS426, north of Grand Comoro. The west coast of that island is then followed to the main port at Moroni. The only other official port of entry is Mutsamudu on Anjouan Island. To reach it, from WP IS425 the course should be altered for WP IS427.

ROUTES IN THE SOUTH INDIAN OCEAN

A direct route can be sailed to Mayotte (IS42B) by setting a course from WP IS423 for WP IS428. The course can then be altered for WP IS429, in the approaches to Dzaoudzi, the official port of entry

into Mayotte. The Port Captain should be contacted on VHF channel 16 for instructions before the perimeter reef is entered.

IS43 Seychelles to East Africa

BEST TIME:	May to September			
TROPICAL STORMS:	None			
CHARTS:	BA: 4071 US: 70			
PILOTS:	BA: 3, 39 US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS431 Mahé N 4°32'S, 55°26'E	IS432 Amirante N 4°42'S, 53°24'E	IS433 off Mombasa 4°04'S, 39°45'E	Mombasa 4°04'S, 39°41'E	944
		IS434 Salaam 6°50'S, 39°24'E	Dar es Salaam 6°49'S, 39°19'E	973

Favourable winds can be expected on this route throughout the SE trade wind season, from April till October, the months with the most consistent winds being May to September. During this period the current is also favourable, setting westward, but it turns northward before reaching the African coast.

From WP IS431, north of Mahé's North Point, the route goes due west to pass north of the Amirante Islands through WP IS432, 10 miles north of North Island. At night or in poor visibility the islands should be passed at a safe distance as they are low and the light on North Island is reported to be out of action occasionally. Those who wish to stop can do so by following the directions in IS42.

From WP IS432, the routes split according to their East African destination. Boats bound for Kenya

should set a course for WP IS433, in the approaches to Mombasa. Port Control should be contacted on VHF channels 12 or 16. Other ports of entry into Kenya are Lamu (2°18'S, 40°55'E) and Malindi (3°13'S, 40°07'E).

Boats bound for Tanzania should set a course from WP IS432 for WP IS434, in the approaches to Dar es Salaam. Arriving yachts should anchor in the inner harbour and wait to be visited by the various officials. The other ports of entry into Tanzania are Zanzibar (6°10'S, 39°11'E), Mtwara (10°15'S, 40°12'E), and Tanga (5°04'S, 39°06'E). Formalities in Tanga appear to be the easiest and Tanga Signal Station should be contacted on VHF channel 12 before proceeding to Dhow Wharf for clearance.

IS44 Comoros to East Africa

BEST TIME:	May to October
TROPICAL STORMS:	November to April
CHARTS:	BA: 4701 US: 701
PILOTS:	BA: 3, 39 US: 171

IS40 ROUTES IN THE WESTERN INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IS44A				
IS441 Mayotte NE 12°44'S, 45°15'E		IS442 off Mombasa 4°06'S, 39°44'E	Mombasa 4°04'S, 39°41'E	616
Route IS44B				
IS443 Comoro NW 11°40'S, 43°12'E		IS442 off Mombasa	Mombasa	502

Favourable winds prevail along this route during the SE monsoon and there is also a north-setting coastal current throughout the year, which can reach as much as 4 knots at the peak of the SE monsoon, but is only slight during the NE monsoon. The most pleasant weather is in July and August, when the temperature is cooler and humidity low.

Whether leaving from Mayotte (IS44A) or Grand Comoro (IS44B), boats bound for Kenya can sail a direct offshore route. From WP441, in the approaches to Dzaoudzi, on Mayotte, a course can be set for WP IS442, in the approaches to Mombasa. Mombasa Port Control should be contacted on VHF channels 12 or 16. Boats leaving from Moroni, on Grand Comoro, can take their departure from

WP IS443 and also set a course for WP IS442.

The above offshore routes pass outside Tanzanian waters. The alternative is to take an inshore route inside the reefs that front the Tanzanian coast. If the intention is to cruise most of the Tanzanian coast, clearance formalities should be completed in the southern port of Mtwara (10°15'S, 40°12'E). Other Tanzanian ports of entry are the capital Dar es Salaam (6°49'S, 39°19'E), Zanzibar (6°10'S, 39°11'E), and Tanga (5°04'S, 39°06'E). The island of Pemba is closed to visitors on security grounds and as there are several sensitive areas in Tanzania skippers are advised to check the situation with the authorities in Dar es Salaam to avoid trouble with local officials.

IS45 Comoros to Seychelles

BEST TIME:	May to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 72			
PILOTS:	BA: 39			
	US: 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS451 Mayotte NE 12°44'S, 45°15'E	IS452 10°00'S, 48°45'E			
	IS453 9°00'S, 50°00'E			
	IS454 Mahé S 4°49'S, 55°33'E	IS455 Mahé SE 4°40'S, 55°33.5'E	Victoria 4°36.5'S, 55°28'E	791

Because the area around the Comoros is subject to tropical storms, this passage should not be undertaken during the cyclone season. From May to October winds along this route are mostly SSE or SE and there is also a favourable current. There are

several island groups north of Madagascar that can be visited en route to the Seychelles, such as Iles Glorieuses or Providence Island, and all of them have protected anchorages.

The direct route from Mayotte passes west of Iles

ROUTES IN THE SOUTH INDIAN OCEAN

Glorieuses. From WP IS451, in the approaches to Dzaoudzi, a course can be set to pass through two intermediate waypoints, IS452 and IS453. The route continues north of Alphonse Islands to WP IS454, off Mahé's South Point. There the course should be altered to sail due north parallel to the coast to WP IS455, one mile SE of Cerf Passage. In good visibility this pass can be taken to reach Port Victoria,

otherwise it may be necessary to carry on past St Anne Island and enter the island's main port through the normal shipping channel. Having contacted the Port Authority on VHF channel 16, arriving yachts must anchor in the quarantine area north of Victoria lighthouse where they will be boarded for clearance.

IS46 Comoros to South Africa

BEST TIME:	October to November			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 72			
PILOTS:	BA: 3, 39			
	US: 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS461 Mayotte SE 13° 00' S, 45° 12' E	IS462 André 16° 00' S, 44° 00' E			
	IS463 25° 00' S, 40° 00' E			
	IS464 28° 30' S, 34° 00' E	IS465 Richards 28° 45' S, 32° 10' E	Richards Bay 28° 48' S, 32° 06' E	1264
		IS466 Natal NE 29° 51' S, 31° 05' E	Durban 29° 52' S, 31° 02' E	1337

The direct route to Durban, or other South African ports, leads through the Mozambique Channel, where the north-setting Mozambique Current can create very difficult sailing conditions. Although the winds that blow between Madagascar and the African mainland often come from a favourable direction, strong NE winds blowing against the current produce rough seas. This passage should not be made before the middle of September, when the chances of encountering contrary winds in the Mozambique Channel are greater than later in the year. If necessary the passage south can be interrupted in Madagascar and mainly for this reason the route should follow the eastern side of the Mozambique Channel. South of the Mozambique Channel similar directions apply as for route IS52 which also describes weather conditions in detail.

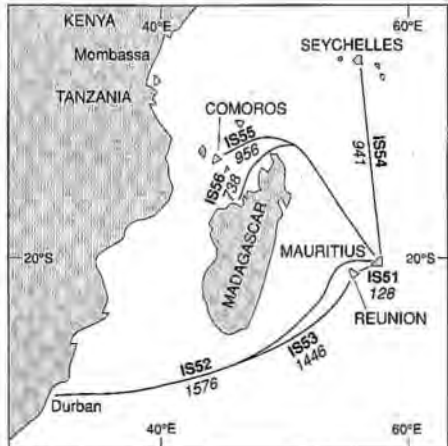
From WP IS461, off the SE extremity of Mayotte, the offshore route goes SW to WP IS462 off Cape St André. From there the route runs parallel to the west coast of Madagascar passing between Chesterfield and Juan de Nova islands all the way to WP IS463, also passing to the east of Europa Island. From WP IS463 the course should be altered for WP IS464. Depending on weather conditions, from that point one can close with the South African coast, especially if intending to stop first at Richards Bay, in which case landfall will be made at WP IS465. If bound for Durban a course should be set for WP IS466, in the approaches to Durban. Durban Harbour Radio can be contacted before entering the port, but this is not compulsory. Yachts should proceed to the international jetty before formalities are completed ashore.

IS50 ROUTES FROM THE MASCARENE ISLANDS

IS51 <i>Mauritius to Réunion</i>	419
IS52 <i>Mauritius to South Africa</i>	420
IS53 <i>Réunion to South Africa</i>	421
IS54 <i>Mauritius to Seychelles</i>	422
IS55 <i>Mauritius to Comoros</i>	423
IS56 <i>Mauritius to Madagascar</i>	424

Mauritius has always been a popular stopover from where to prepare for the long and difficult leg to South Africa. This passage can be a rough trip and there are few other areas in the world that have such a bad reputation among cruising boats as the southwestern part of the Indian Ocean. The strong south flowing Agulhas Current can create extremely rough conditions when hit by a SW gale, similar to conditions encountered off Cape Hatteras when the Gulf Stream is hit by a violent northerly wind. Several boats have got themselves into serious trouble on this passage, being knocked down or rolled over and dismasted, either between Mauritius and Durban or on the next leg to Cape Town.

Boats heading north from Mauritius sail into a much more benign region where the weather is mostly fine. Although the entire area is prone to tropical cyclones, the really dangerous period is December to April. From April to November the SE trades blow almost continuously, usually freshening by mid-morning and getting lighter by mid-afternoon. The wind often dies away at night under the influence of the land, and if it does not go calm at night, it will normally blow hard the following morning. The SE trade winds are at their



IS50 Routes from the Mascarene Islands

strongest in June, July, and August. In the cyclone season, which is the most inclement time of year, SE winds are still the most common wind, but they are more moderate in strength and are subject to interruptions by winds from W or NW, or by calms.

IS51 *Mauritius to Réunion*

BEST TIME:	October to November			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070 US: 700			
PILOTS:	BA: 39 US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS511 Mauritius SW 20°10'S, 57°25'E		IS512 Réunion 20°50'S, 55°23'E	Pointe des Galets 20°55'S, 55°18'E	128

ROUTES IN THE SOUTH INDIAN OCEAN

This short passage between the largest two of the Mascarene Islands can be made at any time outside the cyclone season. Most boats stop at the French overseas territory of Réunion on their way to South Africa in October or early November. Many of those who stop in Réunion do so to stock up with French goods and to obtain a South African visa, as there is a South African Consulate in the capital St Denis. Although such visas are not compulsory for sailors who do not leave their boats while

in South Africa, they are recommended for those who intend to travel inland.

From WP IS511, off Port Louis, a direct route passing north of Réunion leads to WP IS512 in the approaches to Pointe des Galets. Entry formalities for Réunion are completed at Pointe des Galets. The Port Captain should be contacted on VHF channel 16 before proceeding to the fishermen's dock. The other port of entry is Saint Pierre (21°20'S, 55°29'E).

IS52 Mauritius to South Africa

BEST TIME:	October to November
TROPICAL STORMS:	November to April
CHARTS:	BA: 4070 US: 700
PILOTS:	BA: 3, 39 US: 170, 171

WAYPOINTS:

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS521 Mauritius SW 20°10'S, 57°25'E	IS522 Réunion E 21°25'S, 56°00'E			
	IS523 27°00'S, 47°00'E			
	IS524 28°30'S, 34°00'E	IS525 Richards 28°45'S, 32°10'E	Richards Bay 28°48'S, 32°06'E	1502
		IS526 Natal NE 29°51'S, 31°05'E	Durban 29°52'S, 31°02'E	1576

The best time to leave Mauritius is early in November when the frequency of spring gales around latitude 30°S is getting less and the chances of an early cyclone are remote. The recommended procedure is to try and keep about 150 miles off the southern tip of Madagascar as the weather in the vicinity of this island is often unsettled. Sailing at this distance from land it is also possible to heave-to if a front arrives with contrary winds. This course also avoids a reputed freak wave area on the extended continental shelf off Madagascar. Yet another reason why it is recommended to stay at least 150 miles south of Madagascar is because the South Equatorial Current splits here, half of it merging with the south flowing Agulhas Current, the other half flowing north into the Mozambique Channel. By closing too early with the African coast several boats have been pushed north by the northern branch of the current, while hoping for a southerly boost

from the Agulhas Current. The winds up to this point can be expected to be favourable, although not necessarily trade wind conditions as encountered earlier on.

The weather of the entire area between Madagascar and the Cape of Good Hope is dominated by the frontal systems which are created by Antarctic lows moving eastward. The approach of a cold front is usually heralded by a gradual change in the appearance of the sky, with cirrus clouds marching in from the west. These are replaced by dense banks of cumulus, while the wind backs slowly from E to NW, freshening all the time. After a brief interlude the gale arrives from the SW, its severity and duration depending on the nature and extent of the front. During the passing of a front, when the wind shifts suddenly from E or NE to SW, conditions in the Agulhas Current can become hazardous, especially around the 100 fathom line. In such a situation it is best to head immediately for

the coast as the waves are smaller in the shallow water near the coast. Alternatively one should try and keep well offshore in deeper water and only approach the coast when close to the destination.

Although it is difficult to predict the kind of weather to expect when closing with the South African coast, one should keep an eye on the barometer. A local method of forecasting the approach of a SW buster is to watch the barometer. As it starts falling the winds will probably be NE. Once the barometer stops falling, the wind becomes light and then ceases altogether. The moment the barometer starts rising, one has between half an hour and one hour before the arrival of the SW gale, which may be enough warning to leave quickly the 100 fathom line.

Most boats have encountered very mixed weather on this route, with winds blowing at anything from 0 to 50 knots. However, very few are spared the SW gales that occur south of Madagascar and which succeed each other at two to three day intervals. After the area south of Madagascar has been passed a new course should be set to a point 200 miles ENE of Durban. Depending on wind and weather a direct course can be steered from there to Durban. A common mistake is to allow too much for leeway, trying to make landfall north of Durban, expecting to be taken south by the current. However, should a SW gale arrive while close to the coast, one would be pushed even further north and in that case the alternative is to seek shelter in Richards Bay. This port is also recommended if landfall is made too far north of Durban. The subsequent 90 mile leg from Richards Bay to Durban can be made later with a favourable weather forecast.

As the main consideration is to avoid crossing the Agulhas Current when the winds are from SW, up to date weather reports are essential. Useful weather reports are broadcast at 1303 GMT on 17655, 4376, 8740.8 kHz, and VHF channel 26.

These are reports from the various lighthouses along the South African coast and so give details of wind strength and direction, as well as barometric pressure, going from south to north. One can therefore assess if a low system is coming up the coast and take appropriate action.

Although it has been suggested that boats bound for South Africa should sail directly to Port Elizabeth in order to avoid the worst of the Agulhas Current, rather than stop at Richards Bay or Durban, experienced local sailors strongly advise against such a course of action. The Agulhas Current reaches its maximum width and strength close to the latitude of Port Elizabeth making this the most dangerous area during bad weather. Furthermore, the chances of encountering the centre of the lows which are moving parallel with the coast are much greater in these latitudes than if the coast is approached north of Richards Bay, where the Agulhas Current is also narrower. It is therefore better to make landfall in about latitude 28°S and continue south only with a favourable weather forecast.

From WP IS521, off Port Louis, the recommended route to avoid the dangerous area south of Madagascar passes east of Réunion through WP IS522. From there a course can be set for WP IS523 and thence for WP IS524. Depending on the port of destination as well as weather conditions, the course can then be altered to close with the coast. A convenient port of entry is Richards Bay, where a boat may be sent out to guide a yacht into the port. Boats bound for Richards Bay should make landfall at WP IS525. Those wishing to proceed directly to Durban should set course for WP IS526, in the approaches to Durban. Durban Harbour Radio can be contacted before entering the port, but this is not compulsory. Yachts are normally directed to the international jetty and formalities are completed ashore.

IS53 Réunion to South Africa

BEST TIME:	October to November
TROPICAL STORMS:	November to April
CHARTS:	BA: 4070 US: 700
PILOTS:	BA: 3, 39 US: 170, 171

ROUTES IN THE SOUTH INDIAN OCEAN

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS531 Réunion SW 21°20'S, 55°28'E	IS532 27°00'S, 47°00'E			
	IS533 28°30'S, 34°00'E	IS534 Richards 28°45'S, 32°10'E	Richards Bay 28°48'S, 32°06'E	1373
		IS535 Natal NE 29°51'S, 31°05'E	Durban 29°52'S, 31°02'E	1446

Similar directions apply as for route IS52 from Mauritius. Several of those who have made this passage described it as the toughest leg of their entire voyage. It is therefore essential to prepare the boat thoroughly for this passage.

The small port of St Pierre, on the SW coast of Réunion, is a convenient point of departure.

From WP IS531, outside St Pierre, an initial course can be set for WP IS532, so as to keep well outside the dangerous area south of Madagascar as described in the previous route. From WP IS532, the same directions apply as those described for route IS52.

IS54 Mauritius to Seychelles

BEST TIME:	June to September			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4071 US: 702			
PILOTS:	BA: 39 US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS541 Mauritius NW 20°08'S, 57°26'E	IS542 Agalega 15°00'S, 56°45'E			
	IS543 10°00'S, 56°10'E			
	IS544 Mahé S 4°49'S, 55°33'E	IS545 Mahé SE 4°40'S, 55°33.5'E	Victoria 4°36.5'S, 55°28'E	941

The SE trade winds provide fair winds on this route from May to October, although the weather tends to be occasionally squally. Cyclones affect the area around Mauritius from the middle of November until the end of April or even beginning of May, during which time it is best to avoid being in this area. As the route passes fairly close to the Cargados Carajos Reefs, some boats take the opportunity to stop at one of these small islands. They belong to Mauritius and permission to stop there should be obtained from the Fisheries Department of Mauritius before leaving Port Louis.

A direct course can be sailed all the way from Mauritius to Mahé, the main island of the

Seychelles. Starting off from WP IS541, in the approaches to Port Louis, a course can be set first for WP IS542 so as to sail at least 20 miles west of Agalega Island and surrounding dangers. The route then passes through WP IS543 and continues towards Mahé passing close to the west of Coetivy Island, which should be approached with care as it has been reported to lie some 3 miles further west than its charted position. Landfall should be made at WP IS544, off Mahé's South Point. The course should be altered there to sail due north parallel to the coast to WP IS545, one mile SE of Cerf Passage. In good visibility this pass can be used to reach Port Victoria, otherwise it may be necessary

to carry on past St Anne Island and enter the island's main port through the beacons shipping channel. Having contacted the Port Authority on

VHF channel 16, arriving yachts must anchor in the quarantine area north of Victoria lighthouse where they will be boarded for clearance.

IS55 *Mauritius to Comoros*

BEST TIME:	May to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4070			
	US: 72			
PILOTS:	BA: 39			
	US: 170, 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route IS55A				
IS551 Mauritius NW 20°08'S, 57°26'E	IS552 Ambre E 11°50'S, 50°30'E			
	IS553 Ambre N 11°50'S, 49°15'E	IS554 Mayotte NE 12°44'S, 45°15'E	Dzaoudzi 12°47'S, 45°15'E	956
Route IS55B				
IS551 Mauritius NW	IS552 Ambre E IS553 Ambre N	IS555 Anjouan NE 12°02'S, 44°30'E	Mutsamudu 12°10'S, 44°24'E	1203
		IS556 Comoro SE 12°00'S, 43°45'E	Moroni 11°42'S, 43°15'E	1070

During the SE trade wind season, from May to October, this is a downwind run to the northern tip of Madagascar. The favourable winds should continue all the way to the Comoros, the group of small islands spread out between Madagascar and the African coast. Mayotte belongs geographically to the Comoros, but as it is a French territory it is separate from the independent Comoros.

From WP IS551, off Port Louis, a direct route leads to WP IS552, east of Cap d'Ambre, the northern extremity of Madagascar. As the route passes very close to Tromelin Island, a tiny French possession lying halfway between Mauritius and the northern tip of Madagascar, the passage can be interrupted there. Having passed Cap d'Ambre at a reasonable distance to avoid the rough seas in its vicinity, the course can be altered for either Mayotte or one of the islands in the Comoros. The route to Mayotte (IS55A) passes close by the Geyser Bank, which should be avoided. From WP IS553,

north of Cap d'Ambre, the course should be altered for WP IS554, in the approaches to Dzaoudzi, the official port of entry into Mayotte. The Port Captain should be contacted on VHF channel 16 for instructions before the perimeter reef is entered.

Boats bound for the Comoros (route IS55B) may stop at Iles Glorieuses, two small islands surrounded by a reef. From there, or if a stop in the Glorieuses is not intended, from WP IS553, north of Cap d'Ambre, a direct course can be sailed to the nearest of the Comoros, which is Anjouan. The landfall point for that island is IS555, off its north point. From there the course is altered to reach the port of Mutsamudu. Because the prevailing winds are from the south, boats bound for Grand Comoro should approach that island from the SE, rather than the north. To do this, from WP IS553 a course should be set for WP IS556, off Grand Comoro's SE point. From there, the south and west coasts of the island are followed to Moroni.

IS56 Mauritius to Madagascar

BEST TIME:	May to October			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4702			
	US: 702			
PILOTS:	BA: 39			
	US: 171			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS561 Mauritius NW 20°08'S, 57°26'E	IS562 Ambre E 11°50'S, 50°30'E	IS563 Ambre N 11°50'S, 49°15'E	Antseranana 12°16'S, 49°18'E	738

More cruising boats are visiting this large island off the coast of Africa which receives the full force of the SE trade winds blowing across the Indian Ocean. The strongest SE winds are in July, August, and September. Madagascar is under the influence of these winds all year, although the southern limit of the SE trade winds moves up the coast from August to November. During this period variable winds are experienced in the southern half of the island, although most winds are from an easterly or northeasterly direction. Winds from these directions can blow quite strongly. In March, when the ITCZ is further south, the northern tip of the island loses the SE winds to NE and NW winds. Madagascar lies within the cyclone belt, although cyclones are not as frequent as in the Mauritius

area. The South Equatorial Current splits at the centre of the island and runs north and south along the east coast. The current along the west coast is mostly south-setting.

As better sailing conditions will be encountered by sailing from Mauritius around the northern tip of Madagascar, directions as far as Cap d'Ambre are similar to those given for route IS55. Rather than sail a direct course to Cap d'Ambre, better conditions will be found if the northern tip of Madagascar is approached from the east. Therefore an initial course should be sailed for WP IS562 from where the route continues west along the same latitude to WP IS563 before altering course for the NW coast of the island. The nearest port of entry is at Antseranana.

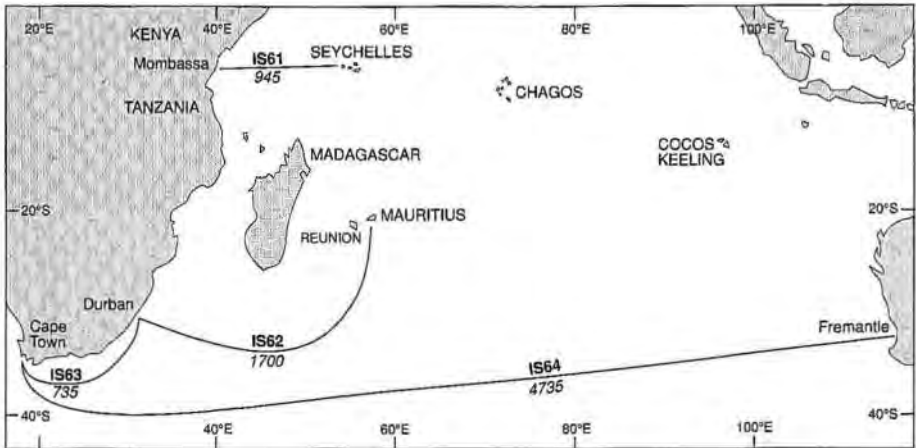
IS60 ROUTES FROM AFRICA

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The gradual easing of restrictions in some African countries has resulted in an increase in the number of cruising boats visiting various countries in East Africa, although the majority continue to limit their cruising to the offlying islands. Some boats reach East Africa by sailing south through the Red Sea and along the African coast during the NE monsoon. Others reach the area by making a detour via the islands of the South Indian Ocean before continuing towards the Red Sea. The best weather conditions for boats northbound from East Africa are encountered during the SW monsoon,

particularly in September when the winds are less boisterous than at the height of the season, between June and August. The islands of the South Indian Ocean are occasionally visited by boats coming from South Africa, a tough trip against the prevailing winds and current. No less tough is the passage to Australia in the Roaring Forties, in an area of strong westerly winds which at least blow from a favourable direction.

Along the coast of East Africa, the SE trade winds blow steadily from April to October and rarely exceed 20 knots. The wide band of northbound cur-



IS60 Routes from Africa

rent runs close to the shore and can be augmented by these SE winds so as to reach 4 knots, which makes it difficult if not impossible to sail south during the wrong season. For this reason, voyages along the East African coast should start at the most southerly point and follow the coast in a northerly direction. During the NE monsoon, when

winds from the NE and E prevail, this current is slacker. Along the Tanzanian coast it is possible to take an inshore route which stays inside the reefs and islands. East Africa is not affected by the tropical cyclones that occur further south and east. Weather conditions around South Africa are described on page 420.

IS61 East Africa to Seychelles

BEST TIME:	January to March			
TROPICAL STORMS:	None			
CHARTS:	BA: 4071			
	US: 70			
PILOTS:	BA: 3, 39			
	US: 170, 171			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
IS611 Mombasa 4°04'S, 39°45'E	IS612 Amirante N 4°42'S, 53°24'E	IS613 Mahé N 4°32'N, 55°26'E	Victoria 4°36.5'S, 55°28'E	945
IS614 Dar es Salaam 6°50'S, 39°24'E	IS612 Amirante N	IS613 Mahé N	Victoria	973

The NE monsoon makes itself felt along this route between January and March, when conditions for an eastbound passage are favourable, even if the winds are often light. Between December and April the current along this route is also favourable.

Although this is the cyclone season in other parts of the South Indian Ocean, cyclones very rarely reach the latitude of the Seychelles. Should a cyclone threaten to come this way, with adequate warning boats on passage from Africa could turn

ROUTES IN THE SOUTH INDIAN OCEAN

north at the first sign of an approaching storm and move quickly out of its way into an area not affected by tropical storms.

A direct route leads outside all dangers from the Kenyan coast to Mahé, the main island in the Seychelles. From WP IS611, in the approaches to Mombasa, a direct course can be set for WP IS612, 10 miles north of North Island, the northernmost of the Amirante Islands. At night or in poor visibility the islands should be passed at a safe distance as they are low and the light on North Island is

reported to be sometimes out of action. The course can then be altered for WP IS613, north of Mahé's North Point, in the approaches to Port Victoria. This is entered through the main shipping channel.

Boats leaving from a Tanzanian port, such as Dar es Salaam, follow a similar route. From WP IS614, in the approaches to Dar es Salaam, a direct course can be set for WP IS612. The rest of the route is similar to the one described above.

IS62 Durban to Mauritius

BEST TIME:	May				
TROPICAL STORMS:	November to April				
CHARTS:	BA: 4070				
	US: 70, 700				
PILOTS:	BA: 3, 39				
	US: 170, 171				
WAYPOINTS:					
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>	
IS621 Natal E	IS622				
29°52'S, 31°05'E	30°00'S, 50°00'E				
	IS623 Brabant	IS624 Mauritius S	Port Louis	1700	
	20°25'S, 57°15'E	20°12'S, 57°24'E	20°09'S, 57°29'E		

Few boats attempt to sail a rhumb line between these two points because of the strong south-flowing Agulhas current and the high probability of encountering contrary winds. The recommended tactic is to make easting with the help of the prevailing westerly winds of higher latitudes. On leaving Durban, from WP IS621 a SE route is taken so that, depending on weather conditions, easting is made between latitudes 30°S and 35°S. However, one should be prepared to go even further south in search of westerly winds, possibly as far as 40°S. Strong westerlies should be encountered in those latitudes and also frequent squalls. Having sailed at least 800 miles in a SE direction, a point will be reached where the course can be altered for a more

direct route to Mauritius. The NE course will lead first into an area of variable winds and calms. The SE trade winds can sometimes be found as far south as 30°S and, once found, they should ensure a fast passage for the rest of the voyage. The best month for this passage is May when the cyclone season has come to an end in the South Indian Ocean and the winter gales of higher latitudes are only about to begin.

Mauritius will be approached from the south by a route which will pass east of Réunion Island. Landfall will be made at WP IS623, off Cape Brabant, the SW extremity of Mauritius. From there the course can be altered for WP IS624, in the approaches to Port Louis.

IS63 Durban to Cape Town

BEST TIME:	January to March
TROPICAL STORMS:	None
CHARTS:	BA: 4204 US: 61003, 61000
PILOTS:	BA: 2, 3 US: 123, 171

The best time to make this passage along the South African coast is between January and March, when weather conditions can be expected to be the most benign. Few people attempt to make this passage in one go without seeking shelter in one of the few good ports en route. In fact the lack of sheltered anchorages is only one of three factors that make sailing along this section particularly difficult, the other two being the Agulhas Current and the unpredictable weather pattern. The Agulhas Current runs in a SW direction following the 100 fathom (200 metres) contour of the continental shelf and can attain up to 6 knots in places. The weather around the southern extremity of the African continent is greatly influenced by pressure systems moving NE from the Southern Ocean. As mentioned in route IS52, a SW gale combined with the strong south-flowing current can create giant waves up to 60 ft in height and even higher.

It has been established from research carried out into the formation of these freak waves that in all cases the dominant waves came from the SW. This always appears to coincide with a specific weather pattern, when areas of low pressure move along the coast in a NE direction. It is not uncommon during such conditions for the wind to suddenly change from a near NE gale to a full SW gale, the wind reinforcing the existing wave pattern which acts against the Agulhas Current. Usually the largest waves occur between the edge of the continental shelf and an area 20 miles to seaward and this is the reason why mariners are advised to move inshore inside the 100 fathom line as soon as there is a sign of an approaching SW gale. Although coastal passages are outside the scope of this book, the area under discussion has caused so many nightmares to small boat voyagers that the Durban to Cape Town route has been considered in sections.

Durban to East London (250 m)

As there is absolutely no safe shelter along this stretch of coast, it is essential to leave Durban with

a good forecast. It is recommended to leave Durban at the end of a SW gale when the barometer has topped out around 1020 millibars. On leaving Durban one should head straight for the 100 fathom line to take full advantage of the strong south-setting current. Should the weather deteriorate unexpectedly, one must close with the shore immediately so as to avoid the worst of the waves.

East London to Port Elizabeth (120 m)

The same rules for leaving apply as for the run from Durban south with the proviso that if the weather is still favourable when level with East London and the barometer is not falling dramatically, it is better to continue to Port Elizabeth rather than stop at East London. In case of a sudden deterioration of the weather, the same kind of avoiding action should be taken as described earlier. It must be stressed that the Agulhas Current is very strong between these two ports and also that there are inshore setting currents into some of the bays en route.

Port Elizabeth to Mossel Bay (170 m)

This section presents less problems than the previous ones as there are several places en route where one can shelter from a gale. One of the first of these ports is Knysna, although the entrance is quite difficult because of the strong tidal currents and can become hazardous during a SW gale when heavy swells break across the entrance. Shelter can also be found in Mossel Bay, near Cape Seal in Plettenberg Bay, and close to Cape St Francis, where one should beware of uncharted reefs.

Mossel Bay to Cape Town (195 m)

There are several places where one can anchor safely during unfavourable weather and on no account should Cape Agulhas be rounded in bad weather. There are onshore setting currents near all headlands on this route, which are also fronted by reefs, making navigation very difficult, especially in poor visibility.

IS64 Cape Town to Western Australia

BEST TIME:	December to February			
TROPICAL STORMS:	November to April			
CHARTS:	BA: 4204, 4070			
	US: 70, 204			
PILOTS:	BA: 2, 3, 17, 39			
	US: 123, 170, 175			
CRUISING GUIDES:	<i>Circumnavigating Australia's Coastline</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
IS641 Table S 34°05'S, 18°12'E	IS642 Agulhas 37°00'S, 20°00'E			
	IS643 39°00'S, 30°00'E			
	IS644 39°00'S, 100°00'E	IS645 Garden 32°06'S, 115°38'E	Fremantle 32°00'S, 115°45'E	4735

As most of this passage will be made in the Roaring Forties, or even higher latitudes, it is recommended to sail in the southern summer when the frequency of gales is lowest, the weather warmer and there is little risk of encountering icebergs. Although the recommended time coincides with the season of tropical storms, these very rarely reach high latitudes and the only area where they might be encountered is close to Western Australia.

On leaving Cape Town, from WP IS641, a SSE course can be set for WP IS642 to avoid the area of the Agulhas Bank, which has a high frequency of gales and also a contrary current. Even if the course made good is SSW because of SE winds, the lost ground can be made up later when the area of westerly winds has been reached. In October and November the northern limit of icebergs extends to latitude 39°S in the area comprised between longitudes 20° and 30°E, so the course should turn east before this area is reached.

For vessels going to Western Australia the route runs between latitudes 39°S and 40°S, where the proportion of westerly winds is relatively high during the summer months and the weather considerably warmer than if one went south to about latitude 50°S, where the predominance of westerly winds, and gales, is indeed higher. It must be stressed that a reluctance to go far enough south in search of westerly winds and staying around latitude 35°S usually means a higher proportion of SE winds, and therefore a much slower passage. The course should be altered for Fremantle, or any other West Australian destination, only after meridian 100°E has been crossed. Taking as a point of reference WP IS644, boats bound for Fremantle can set a course from that point for WP IS645, NW of Garden Island in the approaches to Fremantle. The continuation of the route towards Bass Strait is described in route IS17 (page 405).

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WINDS AND CURRENTS IN THE RED SEA

Winds

The distinctive long shape of the Red Sea, bordered by low arid coasts with high mountains rising some twenty miles inland, dictates in some measure the direction of winds, which tend to blow parallel to these coasts, either from a NW or SE direction. These winds differ significantly in the southern and northern areas of the Red Sea, and in the south show a seasonal variation due to the movement of the convergence zone between the wind systems of the northern and southern hemispheres.

Although the Red Sea is well to the north of the equator, the ITCZ moves into this area to reach its farthest position north in July, around 12°N. At this time of year the ITCZ marks the boundary between the SW monsoon of the Indian Ocean and the prevailing NW winds of the northern Red Sea. During these summer months NW winds blow down the entire length of the Red Sea merging into the SW monsoon in the Gulf of Aden.

In winter the ITCZ lies well to the south of this region, but there is another unrelated convergence zone which lies around 18°N from October to May and marks the boundary between the SE winds in the southern part of the Red Sea and the NW winds of the northern section. This convergence zone is usually marked by cloudy skies in contrast to the ubiquitous sunshine prevailing in the region as a whole. This convergence zone is associated with rain and drizzle.

SE winds predominate from October to January in all areas south of the convergence zone. From January to May the SE winds may not penetrate quite as far as the zone itself, but still predominate in the most southerly areas and in the Strait of Bab el Mandeb. These winds are strongest from November to February, averaging around 20

knots, but gale force winds of 30 knots and over occur fairly frequently. September and May are transitional months with lighter winds. In the Strait of Bab el Mandeb, a funnelling effect occurs which increases the wind speed at all times of the year, but especially in the winter months November to March, when it is frequently 25 knots or more.

In the northern part of the Red Sea from around 20°N, winds from the N to NW predominate in all months of the year, being stronger in winter than in summer. However, in the most northerly part, the Gulf of Suez, winds are more frequently over 20 knots from April to October with the highest frequency of gale force winds during this time. The Gulf of Suez is the only part of the Red Sea to be affected by depressions moving east across the Mediterranean.

Although the Red Sea winds are on average light to moderate, periods of complete calm do occur, sometimes for several days at a time. No tropical storms have been recorded in any part of the Red Sea. There are, however, two strong winds occurring in this region. The *haboob* is a short squall of over 35 knots blowing off the coast of Sudan between S and W, raising lots of sand and dust. *Haboobs* occur particularly in the Port Sudan area and are most common between July and September. The other wind is the *khamsin*, a strong dry S to SE wind, which blows off the land in Egypt and causes sandstorms. It occurs most commonly between February and May.

All of these winds, which bring sand and dust, reduce visibility considerably, often to less than 100 feet, especially near the coast. On the other hand, due to the special refraction conditions prevailing in the Red Sea, land and lights are often visible for much greater distances than normal, up to 100 miles away. This effect can also affect the horizon,

raising or lowering it, which can produce errors in astronavigational observations, up to 20' error in longitude and 10' error in latitude. This phenomenon can affect observations taken before and after noon in different ways and can produce the impression of an apparent cross-current. It is thought that refraction is less at twilight and in the early morning, so therefore the taking of star sights has been recommended in this region. A brilliant luminescence sometimes occurs in the Red Sea making the water appear shallower. With the presence of unlit reefs extending far offshore in several places, these conditions may explain why so many yachts came to grief in this region in the past. Satellite navigation has improved safety considerably, but navigation should still be treated with due caution as most charts do not agree with satellite observations and the positions of most dangers are therefore approximate.

The Red Sea area is a hot arid region with a low rainfall. The average temperature is very high, around 30°C, but often reaches over 40°C in the day and even temperatures exceeding 50°C are not uncommon. Temperatures are lowest in winter in the more northerly part, dropping to 18°C in the Gulf of Suez on a winter night. This contrasts with the southern areas of the Red Sea, where in August the temperature is over 40°C by day and does not drop below 32°C even at night, which can easily

lead to heat exhaustion in unclimatised people. Care must be exercised in this area, especially on metal yachts, because the temperature of a steel deck can easily rise to a blistering 70°C.

Currents

The overall direction of the currents in the Red Sea is influenced by the monsoons in the Indian Ocean. From November until April, while the NE monsoon is blowing, water is pushed into the Red Sea and there is a predominantly N to NW setting current along the axis of the Red Sea. From May until October, when the SW monsoon prevails over the Indian Ocean, water is drawn out of the Red Sea and a S to SE setting current prevails. Due to the narrowness and shape of the Red Sea, there is a great variability in the currents and many lateral currents run in and out from the main stream, particularly near islands and reefs. These cross-currents occur in all months and are very variable. They are not as strong as was first believed, because many apparent cross-currents were found to be due to errors in astronavigation produced by the refraction effect on the horizon. The strongest current is experienced in the Strait of Bab el Mandeb, reaching 2 knots in the NE monsoon season. In the transitional months between monsoons, April and May, or October, there is little or no current.

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ROUTES IN THE RED SEA

In spite of its many attractions, good anchorages, excellent fishing, and magnificent diving, the Red Sea has just as many disadvantages from the cruising point of view and therefore most people try and pass through it as quickly as possible. In most cases the problems are of a political nature and countries such as Saudi Arabia and Yemen do not encourage yachts to visit them, while Sudan and Jordan only tolerate them. The reception in Egypt depends entirely on the current situation, which can change from day to day, although the transit of the Suez Canal itself is normally dealt with efficiently.

An area worth exploring by those with time on their hands is the Gulf of Aquaba. Three of the four countries bordering this narrow stretch of water, Egypt, Jordan, and Israel, have ports of entry at Sharm el Sheik (27°51'N, 34°17'E), Aquaba (29°31'N, 35°00'E), and Eilat (29°33'N, 34°57'E). The notable exception is Saudi Arabia, which positively discourages visits by yachts, not just in the Gulf of Aquaba, but anywhere on its coasts. Cruising boats that have strayed into Saudi waters in the past have been turned firmly away. So while this situation continues Saudi ports should be avoided.

A significant change has occurred in Eritrea, where the coming of peace after the prolonged war with Ethiopia has made it again possible to include this area into one's cruising plans. For all the above reasons, the political situation in the bordering countries should be followed carefully before arriving in the Red Sea to know if there are any areas which should be avoided. As the Middle East is one of the most volatile regions of the world, the current situation should be monitored continuously by listening regularly to the

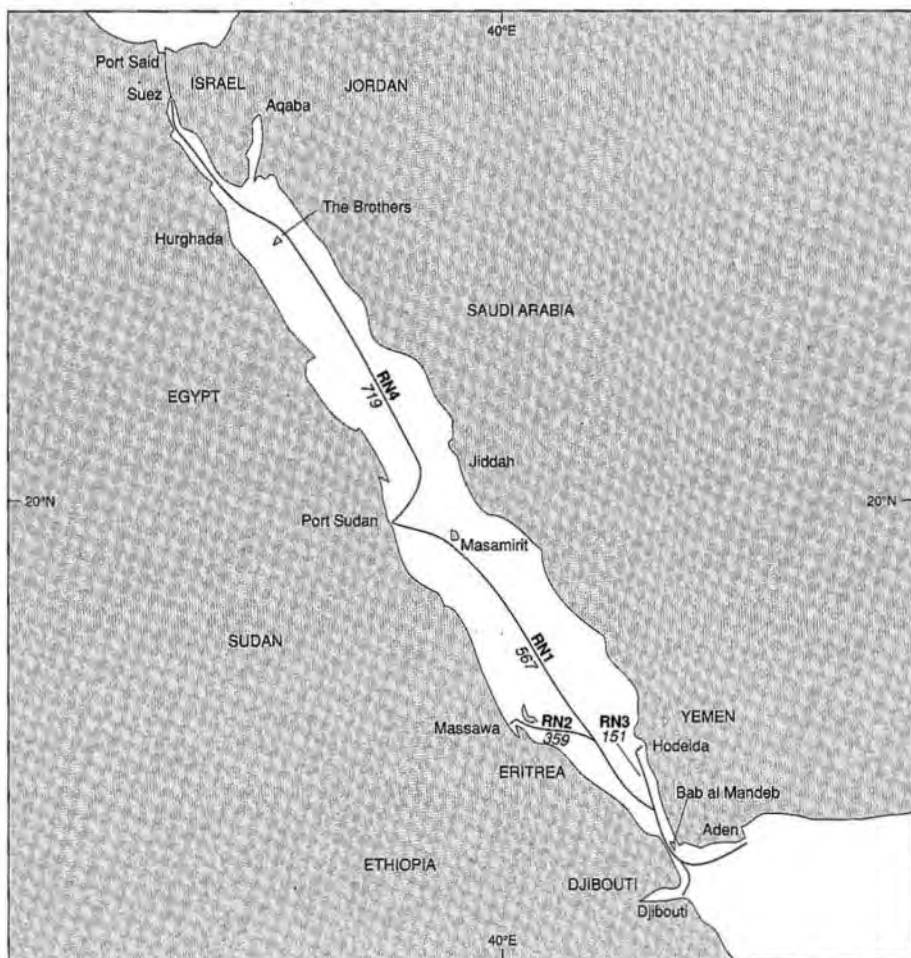
international news on a reputable station such as the BBC World Service.

For those who may be put off by too much paperwork and dealings with officials, the drastic alternative is to undertake a nonstop passage up or down the middle of the Red Sea. Unfortunately such a solution may be just as unattractive because of the large amount of shipping and often unfavourable wind. Because of all these factors, most sailing boats that pass through the Red Sea compromise by alternating offshore legs with coastal cruising in daily hops. The method has much to commend it as it is less trying for the crew than a nonstop passage and is also safer, because many of the numerous navigational hazards can be avoided in this way. The average time in which the entire length of the Red Sea can be navigated in this manner is between three and four weeks.

Because coastal cruising is outside the scope of this book, only the offshore passages are described in detail. However, as some of the distances may be covered in shorter stages all relevant charts should be carried on board. Reefs and other dangers are well marked, particularly on British Admiralty charts, and navigation among the reefs is not difficult in good light. Eyeball navigation is not as difficult as it would appear, and provided the time of arrival is planned carefully, so as to have good light when entering a reef anchorage, navigating among the coastal reefs should present no great problem. When seeking an anchorage for the night it is advisable not to leave this until too late in the afternoon because the lower sun casts a sheen over the water obscuring dangers which otherwise are easily seen.

RN NORTHBOUND ROUTES

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RN Northbound routes

Regardless of the time of year, northbound boats usually have to contend with contrary winds for at least half their passage up the Red Sea. Therefore it is difficult to recommend a preferred time of year, especially as the Red Sea passage is usually a continuation of a voyage, the timing of which has been decided by other factors. Most boats undertake their northbound voyage at the end of winter, between February and April, usually after having crossed the North Indian Ocean during the NE monsoon. Although NW winds prevail in the northern half of the Red Sea throughout the year, these tend to be lighter in spring than in winter, making April one of the best months for the northbound voyage. Another advantage of a late March or April passage is that the Mediterranean is reached as the weather starts getting warmer and the cruising season begins. Although the headwinds of the Red Sea have become something of a

legend among sailors, it must be pointed out that winds do not always follow the axis of the sea and, although forced to tack, boats can usually choose a more favourable tack. Another observation worth bearing in mind is that the wind tends to shift with the sun, being more NNE in the morning and NW in the afternoon. During the EUROPA Round the World Rally, in March 1992, all boats in the Racing Division managed to sail the entire distance between Port Sudan and Suez, some of the boats with good windward performance having to tack very little by using the slant of the winds to best advantage and covering the distance in remarkably fast times. Even some of the boats in the Cruising Division coped with the contrary winds well and, as they were allowed to use their engines, good times were recorded by motorsailing at the most efficient angle whenever possible.

RN1 Bab el Mandeb to Port Sudan

BEST TIME:	October to January			
CHARTS:	BA: 6, 138, 141, 143 US: 62090, 62290, 62270			
PILOTS:	BA: 64 US: 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
RN10 Perim W 12°38'N, 43°21'E	RN11 Umani 13°00'N, 43°15'E RN12 Zuqar E 14°00'N, 42°51'E RN13 Zubair SW 15°00'N, 42°00'E RN14 Jabal at Tair 15°30'N, 41°40'E RN15 Farasan 17°00'N, 40°40'E RN16 Masamirrit E 18°50'N, 38°55'E RN17 Hindi Gider 19°30'N, 38°00'E	[RN19 Dohrat Abid] 18°15'N, 38°45'E RN18 Sudan NE 19°36'N, 37°17'E	Port Sudan 19°37'N, 37°14'E	441 567

Very few boats choose to continue their voyage from the Indian Ocean into the Red Sea without stopping and the distinctly narrow choice is between Aden and Djibouti. Because of the uncertain situation in Aden, and the limited range of

facilities there, Djibouti has become the more popular port of call. Djibouti has reasonable repair facilities, good provisioning, and an active yacht club. It also has regular flights to Paris, which makes it a good port for crew changes.

The weather at the recommended time is usually favourable with a north-setting current in the Strait of Bab el Mandeb and southerly winds possibly as far as the latitude of Port Sudan.

Boats leaving Djibouti for the Red Sea should pass to the east of the Musha Islands and clear the headland of Ras Bir by at least 10 miles before altering course for the Strait of Bab el Mandeb (Gates of Sorrow). The Djibouti coast to the west of the Musha Islands, as well as the area facing Bab el Mandeb, should not be approached too closely as vessels have been molested by rebels during disputes with the central Djibouti government. Boats leaving from Aden have a clear run to the strait. Whether coming from Djibouti or Aden, boats passing through the strait should do so west of Perim Island. A traffic separation zone is in operation in the strait and northbound vessels must keep to the starboard side. Perim Island should not be passed unnecessarily close because it is a restricted area. For the same reason, Small Strait east of Perim Island should only be used in an emergency. An anchorage used occasionally by boats waiting for either daylight or favourable winds to pass through Bab el Mandeb is located in a small bay off the Yemeni coast, NE of Bab el Mandeb in approximate position 12°43'N, 43°35'E. In principle, the anchorage should only be used by boats that have cleared into Yemen at Aden.

The 200 miles from Bab el Mandeb to Jabal at Tair Island, which has a powerful light on it, can be made either nonstop or in shorter stages by anchoring at one of the two island groups en route. If the winds are favourable it is advisable to make as much nothing as possible while they last, rather than stop in the islands. Both Hanish and Zubair Islands belong to Yemen, and although anchoring by yachts in transit is usually tolerated, landing is prohibited. In poor visibility or heavy weather it is better to pass to the east of the Hanish Islands, where clearer landmarks make it easier to avoid the various dangers. On the other hand, Zubair Islands should be passed on their west side where there are no offlying dangers.

From WP RN10, west of Perim Island, in the Strait of Bab el Mandeb, a course should be set for WP RN11, to stay with the northbound traffic. From that point it is easier to set a course which stays east of the Hanish Islands by making for WP RN12, east of Zuqar Island. The route passes through Abu Ail Channel, between the rock of that name and Zuqar Island, and heads for WP RN13, WSW of Zubair

Island. It is close to this point that the main route is left by boats bound for either Massawa in Eritrea (route RN2), or Hodaïda in Yemen (route RN3).

From the Zubair Islands the trunk route continues in a NW direction past Jabal at Tair, whose powerful light is an excellent reference while negotiating a safe course between the various dangers that front both shores of the Red Sea, the width of the fairway being about 60 miles in this area. From WP RN14, west of Jabal at Tair, a new course is set for WP RN15 so as to avoid both the Farasan Islands on the Saudi side and the Dahlach Bank off the Eritrean coast. For those who do not wish to take the inshore route to Port Sudan, the route continues to WP RN16, east of the light on Masamirîl Islet, which should be approached from the SE and passed on its east side because of the dangerous area south of it. The course can then be altered for WP RN17, north of Hindi Gider light, so as to pass outside the numerous reefs that litter this area. There follows a final course alteration for WP RN18, south of Wingate Reef, at the entrance into Port Sudan. Boats which do not intend to stop in Port Sudan should continue on their offshore route by setting a course from WP RN16, off Masamirîl Light, for WP RN43. The continuation of the route to Suez is described in RN4.

Before entering Port Sudan, Port Sudan Radio should be contacted on VHF channel 16 to advise the boat's name, nationality, and ETA. Having entered the port, the boat should proceed to the yacht anchorage in the NW part of the harbour (19°36.5'N, 37°13.4'E), and wait to be visited by quarantine and security officials. Other formalities will have to be completed in East Town, where the Port Authority's offices are located.

For those who prefer to cover some of the distances south of Port Sudan in shorter stages by sailing inside the reefs, there are two ways of approaching the Sudanese coast. The first option is to make for Khor Nawarat, an anchorage lying very close to the border between Eritrea and Sudan. Because of the dangerous reefs and islets in the Suakin Group and the reportedly unpredictable currents, Khor Nawarat should be approached with extreme caution and only if the vessel's position has been confidently established. To reach the area, the main route described above is left at WP RN15 from where a course should be set for WP RN19, south of Dohrat Abid, at the start of the channel passing between the various reefs in the Suakin Group.

An alternative way to reach the Sudanese coast is to pass close to the south of Masamirrit Islet and make for Trinkitat harbour by threading one's way carefully through the various reefs. An inshore pas-

sage, reasonably well beacons, leads both from Khor Nawarat and Trinkitat to Port Sudan. An interesting stop on this inshore route is the abandoned city of Suakin.

RN2 Bab el Mandeb to Massawa

BEST TIME:	October to January			
CHARTS:	BA: 6, 141, 171 US: 62090, 62290, 62130			
PILOTS:	BA: 64 US: 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
RN20 Perim W 12°38'N, 43°21'E	RN21 Umari 13°00'N, 43°15'E RN22 Zuqar E 14°00'N, 42°51'E RN23 Zuqar N 14°06'N, 42°41'E RN24 Midir 15°10'N, 40°35'E	RN25 Sahrig 15°00'N, 41°00'E	Massawa 15°37'N, 39°29'E	359

Similar directions apply as for route RN1 as far as Zuqar Island. Having negotiated Abu Ail Channel, on the NE side of Zuqar, a course is set first for WP RN24 and then RN25, at the entrance into South Massawa Channel. This channel, between the African mainland and Dahlach Island, leads into Massawa (Mits'iwa), Eritrea's main port.

As a result of the cessation of hostilities with

Ethiopia and the declaration of independence by Eritrea, the Eritrean authorities are encouraging tourism and cruising boats are welcome to call there. Northbound boats can regain the offshore route either by using the same South Channel, or they can take the longer North Massawa Channel, which runs parallel to the coast in a northerly direction.

RN3 Bab el Mandeb to Hodaida

BEST TIME:	October to January			
CHARTS:	BA: 6, 143 US: 62090, 62290			
PILOTS:	BA: 64 US: 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
RN30 Perim W 12°38'N, 43°21'E	RN31 Umari 13°00'N, 43°15'E RN32 Zuqar E 14°00'N, 42°51'E	RN33 Kathib W 14°53'N, 42°48'E	Hodaida 14°47'N, 42°57'E	151

ROUTES IN THE RED SEA

Boats bound for Hodaida should follow the same directions as for route RN1 until level with Zuqar Island. From WP RN32 a course can be sailed which passes to the east of Abu Ail rock. To avoid the various dangers, from WP RN32 the course should be altered for WP RN33, so that landfall is made off Ras Kathib. This is the northern point of a long and narrow peninsula that has created a perfectly shel-

tered natural harbour in which the port of Hodaida occupies the southern extremity. A 10 mile long buoyed channel leads into Hodaida, whose Port Control should be contacted on VHF channel 16 to advise ETA, name of vessel, and other details before permission is given to proceed into the port. The Yemeni capital Sanaa is easily reached overland from Hodaida.

RN4 Port Sudan to Suez

BEST TIME:	March to April			
CHARTS:	BA: 8, 63, 138 US: 62250, 62230, 62195			
PILOTS:	BA: 64 US: 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
RN40 Sudan NE 19°36'N, 37°17'E	RN41 Sanganeb 19°45'N, 37°35'E RN42 Abington 21°00'N, 38°00'E RN43 Zabargad 23°40'N, 36°30'E RN44 Daedalus 24°55'N, 35°40'E RN45 Brothers 26°20'N, 35°00'E RN46 Shaker E 27°30'N, 34°15'E RN47 Gubal NE 27°43'N, 33°50'E RN48 Shukeir E 28°10'N, 33°25'E	RN49 Suez S 29°34'N, 32°35'E	Port Suez 29°58'N, 32°33'E	719

North from Port Sudan, boats bound for Egypt and the Suez Canal have the same choice as before and can either stay inside the reefs or sail offshore. The best area for day sailing starts immediately to the north of Port Sudan, with several well protected inlets among the reefs. Compared to the southern half of the Red Sea, the north has fewer offshore dangers and the direct route has a clear run all the way to Daedalus Reef (24°56'N, 35°52'E). The recommended route runs roughly parallel to the axis of the Red Sea, although it favours the Sudanese side in case the decision is taken to head for the coast and seek temporary shelter in one of the many inlets.

Having left Port Sudan, from WP RN40, south of Wingate Reef, an initial course is set to WP RN41, east of Sanganeb Reef. The course is then altered for WP RN42, east of Abington Reef, where the offshore route coming up from Masamir Light is joined. A useful landmark on this offshore route is Gezirat Zabargad, a high rocky islet off Foul Bay, an area which is best avoided even by those who have been coastal sailing to this point. The route passes east of Zabargad.

North of Foul Bay, longer offshore legs become increasingly necessary as there are fewer safe anchorages along the Egyptian coast. From WP RN44, west of Daedalus Reef, the route continues

in a NW direction towards the Brothers, which are passed on their east side. A safe all weather anchorage can be found at nearby Hurghada (27°13.8'N, 33°50.7'E), where it is also possible to clear into Egypt. From Hurghada the Gulf of Suez can be reached via Tawila Channel, which avoids a detour past Shaker Island and the Strait of Gubal.

From WP RN45, east of the Brothers, the offshore route heads for the Strait of Gubal, which is entered at WP RN46, east of Shaker Island. From WP RN47 the route runs down the middle of the Gulf of Suez passing through an intermediate WP RN48, off Ras Shukeir. Landfall is finally made at WP RN49, in the approaches to Suez. Navigation through the narrow Gulf of Suez can be daunting, due to the numerous oil rigs, heavy shipping, and the usually contrary wind. The problem is exacerbated by the presence of many disused oil platforms, some of which are not marked by lights. Traffic separation lanes are in operation for the entire length of the Gulf of Suez, with northbound traffic using the right hand lane. Sailing boats, especially if they need to tack, or if motorsailing to windward, normally fare better by favouring the eastern side of the narrow Gulf. It must also be stressed that the waypoints listed for the Gulf of Suez are only

meant as guidelines.

The Suez Canal Authority should be contacted on VHF channel 16 to give an ETA. If Suez Bay is reached during the night it is recommended to anchor either off the main channel or in the waiting area in Port Ibrahim and wait for daylight before passing through the heavy traffic to the Suez Canal Yacht Club. As the yacht club is in the Suez Canal area, yachts should not proceed there without permission from the Canal Authority. If not using the yacht club the recommended anchorage for yachts intending to transit the Canal is just inside the southern breakwater in Port Ibrahim. The breakwater can be passed either west or east and the anchorage is at its eastern end, close to the entrance into the North Basin. A shipping agent or his representative will arrive in his launch soon after Suez Bay has been entered offering to make arrangements for transiting the Suez Canal. Agency fees are extremely competitive and skippers are advised not to accept an offer before a fee has been agreed. Agents normally deal with all formalities, both for entry into Egypt and for transiting the Canal. See also page 491 concerning the transit through the Suez Canal.

RS SOUTHBOUND ROUTES

RS1 *Suez to Port Sudan*

438

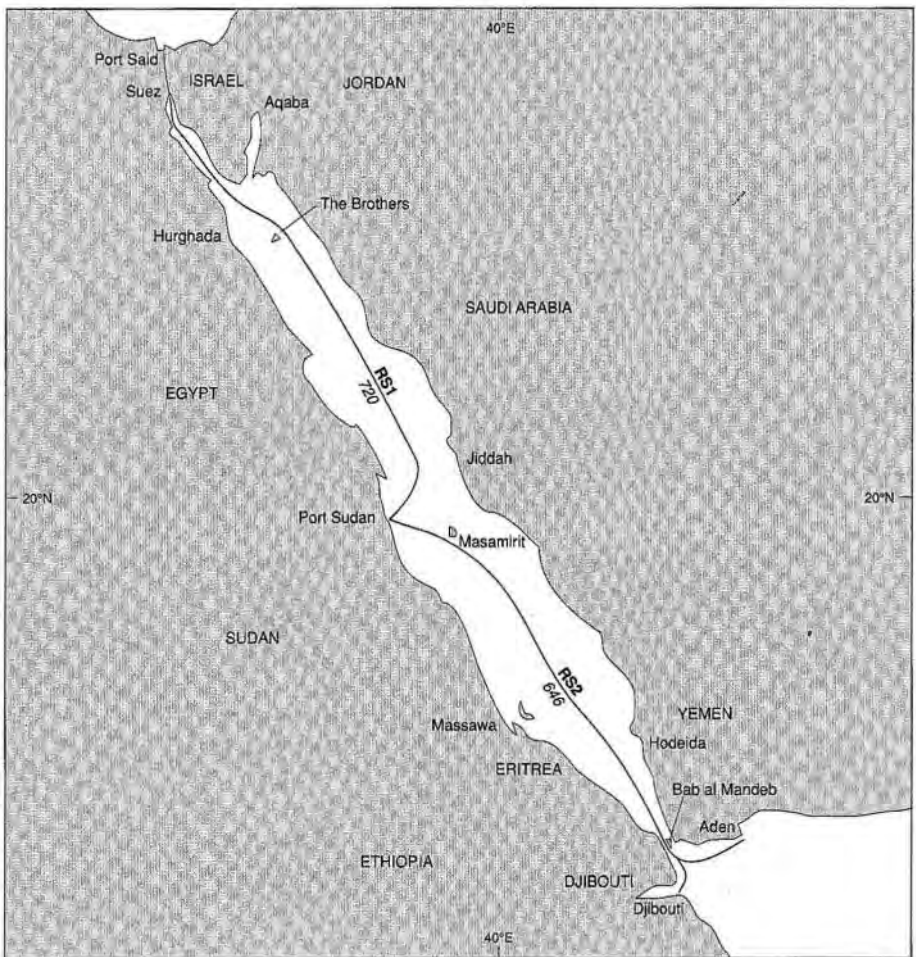
RS2 *Port Sudan to Gulf of Aden*

440

The best time for a southbound passage through the Red Sea depends on just as many factors as a northbound voyage, although weather conditions are invariably better. The most pleasant time to head south is probably during the spring months, from February to April, when the weather is becoming warmer in the northern areas and it is not too hot in the southern section. At this time favourable winds can be expected to last at least as far as the latitude of Port Sudan. From May onwards winds from the NW should be carried the entire length of the Red Sea. The timing of this passage usually depends on the destination after the Red Sea, and the weather in the North Indian Ocean must be taken into account. For an east-

bound passage across the North Indian Ocean the SW monsoon, which blows from May to October, ensures the most favourable winds, although these may be too strong at the height of the monsoon in July and August when a high proportion reach gale force. For this reason, and also the unbearable heat, the summer months in the Red Sea are best avoided. Therefore, if a southbound passage cannot be undertaken towards the end of the NE monsoon, the only alternative is to do it during the autumn transitional period. However, due attention must be paid to the risk of cyclones in the Arabian Sea, as their highest frequency coincides with the same transitional periods. See also routes IN33, IN34, IT22, and IT23 (pages 379, 380, 390 and 393).

ROUTES IN THE RED SEA



RS Southbound routes

RS1 Suez to Port Sudan

BEST TIME:	February to April
CHARTS:	BA: 8, 63, 138 US: 62195, 62230, 62250
PILOTS:	BA: 64 US: 172
CRUISING GUIDES:	<i>Red Sea Pilot.</i>

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
RS10 Suez S 29°34'N, 32°35'E	RS11 Shukeir W 28°10'N, 33°15'E			
	RS12 Gubal NW 27°47'N, 33°44'E			
	RS13 Shaker W 27°28'N, 34°06'E			
	RS14 Brothers 26°20'N, 35°00'E			
	RS15 Daedalus 24°55'N, 35°40'E			
	RS16 Zabargad 23°40'N, 36°30'E			
	RS17 Abington 21°00'N, 38°00'E			
	RS18 Sanganeb 19°45'N, 37°35'E	RS19 Sudan NE 19°36'N, 37°17'E	Port Sudan 19°36'N, 37°14'E	720

Because favourable winds are much more likely to be encountered on southbound passages, most boats cover as much as possible of the Red Sea in long offshore legs and, in contrast to northbound boats, coastal hopping is less common. Because traffic separation lanes are in operation for the entire length of the Gulf of Suez, the intermediate waypoints listed above are only meant as a guideline. Sailing boats normally fare much better by keeping away from the traffic by favouring the east side of the narrow Gulf. At the southern end of the Gulf of Suez, several miles can be saved by sailing through either Zeit or Tawila Channels which lead to the anchorage at Hurghada. If an inshore passage is preferred south of Foul Bay, a convenient place to go behind the reefs is at Ras Hadarba, close to the border between Egypt and Sudan. The entire distance from there to Port Sudan can be covered mostly in sheltered waters where safe anchorages are easily found every night.

Taking WP RS10, south of Suez Bay, as a point of departure, the offshore route runs along the axis of the Gulf of Suez as far as WP RS11, off Ras Shukeir. This first section is the most difficult because of the heavy traffic and also the oil platforms that are to be found everywhere in the Gulf of Suez, many of those no longer in use not being marked by lights. Having reached WP RS12, at the northern entrance into the Strait of Gubal, the course is altered for WP

RS13, east of Shaker Island. From there a course is set to pass east of the Brothers through WP RS14 and on to WP RS15, west of Daedalus Reef. The route then crosses the mouth of Foul Bay where an intermediate WP RS16 is used to pass at a safe distance west of Gezirat Zabargad, a high rocky islet. From the Strait of Gubal to WP RS16 the route favours the western shore where an anchorage can be found in many sheltered bays or inlets.

Having passed Foul Bay, the offshore route heads for WP RS17, east of Abington Reef. From this point, boats bound for Port Sudan leave the offshore route and head in a SW direction. Boats continuing nonstop on an offshore route should alter course for WP RS22, east of Masamirir Light (see route RS2).

To reach Port Sudan, from WP RS17, the course is altered for WP RS18, east of Sanganeb Reef and finally to WP RS19, south of Wingate Reef, at the entrance into Port Sudan. Before entering the harbour, Port Sudan Radio should be contacted on VHF channel 16 to advise the boat's name, nationality, and ETA. Having entered the port the boat should proceed to the yacht anchorage in the NW part of the harbour (19°36.5'N, 37°13.4'E), and wait to be visited by quarantine and security officials. Other formalities will have to be completed in East Town, where the Port Authority's offices are located.

RS2 Port Sudan to Gulf of Aden

BEST TIME:	February to April			
CHARTS:	BA: 6, 138, 141, 143 US: 62270, 62290, 62090			
PILOTS:	BA: 64 US: 172			
CRUISING GUIDES:	<i>Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
RS20 Sudan SE 19°35'N, 37°16'E	RS21 Hindi Gider 19°30'N, 38°00'E			
	RS22 Masamir E 18°50'N, 38°55'E			
	RS23 Farasan 17°00'N, 40°40'E			
	RS24 Jabal at Tair 15°30'N, 41°40'E	[RS293 Kathib N] [14°58'N, 42°50'E]	[Hodalda] [14°47'N, 42°57'E]	452
	RS25 Zubair SW 15°00'N, 42°00'E			
	RS26 Zuqar E 14°00'N, 42°51'E			
	RS27 Umari 13°00'N, 43°15'E			
	RS28 Mandeb W 12°34'N, 43°19'E			
	RS29 Mandeb S 12°25'N, 43°35'E			
	RS290 Ras Bir 12°00'N, 43°32'E	RS291 Musha 11°42'N, 43°18'E	Djibouti 11°36.5'N, 43°07.5'E	646
		RS292 Yemen W 12°42'N, 44°54'E	Aden 12°48'N, 44°58'E	673

Boats leaving Port Sudan bound for Bab el Mandeb and the Indian Ocean may take an inshore route as far as either Trinkitat or Khor Nawarat. From Trinkitat the open sea is reached via a pass which leads due east through the reefs and islets of the Suakin Group. From Khor Nawarat, all dangers of the Suakin Group are left to port and a safe course is set as soon as open water is reached. Since the cessation of hostilities between Eritrea and Ethiopia, and the subsequent independence declaration by Eritrea, it is once again possible to sail through the waters south of Sudan. Those interested in continuing on an inshore route should use North Massawa Channel to reach the Eritrean port of Massawa and complete entry formalities in that country. The open sea is then reached through the South Channel, leading SE from Massawa between

the African coast and Dahlach Island.

If the winds are favourable on leaving Port Sudan, the offshore route should be preferred. In this case, from WP RS20, outside Port Sudan, the initial course should go to WP RS21, so as to pass to NE of Hindi Gider light and the various dangers to SW of it. The route then goes to WP RS22, east of Masamir light to join the offshore route down the middle of the Red Sea. From this point the route follows the axis of the Red Sea passing through WP RS23, halfway between Dahlach Bank, on the Eritrean side, and Farasan Islands, on the Saudi side. The route continues in a SE direction to pass through WP RS24, west of Jabal at Tair, a conspicuous island with a powerful light, which provides a useful point of reference. Two groups of islands lying south of it, Zubair and Hanish Islands, offer

shelter in heavy weather. Both island groups should be approached with caution as there are some offlying dangers. Zubair Islands are best passed on their west side, while Jabal Zuqar and the Hanish Islands should be passed to the east paying careful attention to the various rocks in their vicinity.

Boats intending to call at Hodaida, in Yemen, should leave the offshore route at Jubair at Tair and from WP RS24 set a course for WP RS293, at the landfall buoy north of Ras Kathib. This is the northern point of a long and narrow peninsula that has created a perfectly sheltered natural harbour in which the port of Hodaida occupies the southern extremity. A 10 mile long buoyed channel leads into Hodaida, whose Port Control should be contacted on VHF channel 16 to advise ETA, name of vessel, and other details before permission is given to proceed into the port. The Yemeni capital Sanaa is easily reached overland from Hodaida.

Those who do not wish to interrupt their voyage should stay with the offshore route south of WP RS24. From WP RS25, west of Zubair, a course is set to pass through Abu Ail Channel, NE of Jabal Zuqar, to WP RS26. From there the course is altered to pass through WP RS27 and on to the northern

approaches of the Strait of Bab el Mandeb. Because of a traffic separation zone in the strait, southbound boats should keep to the west side and make for WP RS28. Having passed through Bab el Mandeb into the Gulf of Aden, the course continues to WP RS29. From that point boats bound for Djibouti should alter course for WP RS290 so as to pass well clear of Ras Bir, on the African side. Rebel forces have molested vessels in this area in the past and this is the reason why it is recommended to stay well off this coast and pass east of the Musha Islands. One more course alteration for WP RS291 is needed to pass east of the Musha Islands and approach the port of Djibouti from the NE. The recommended yacht anchorage (11°36.5'N, 43°07.5'E) is off the Djibouti Yacht Club whose facilities may be used by visiting boats. The various authorities are in the nearby commercial harbour and must be visited to complete entry formalities.

From WP RS290 boats bound for Aden should alter course for WP RS292, SW of the entrance into the port of Aden. A marked channel leads into the Inner Harbour, where yachts anchor off the customs dock. Boats are normally met on arrival by a port control launch and directed to the anchorage.

21

WINDS AND CURRENTS OF THE MEDITERRANEAN SEA

The Mediterranean climate is on the whole extremely pleasant, marked by long hot summers and mild winters. Most gales and rain occur in winter months, few storms interrupting the long summer. Local conditions vary considerably, stronger winds and squalls often resulting from local phenomena and not due to the overall weather pattern. Tropical storms do not affect this region.

The Mediterranean can be divided into two halves, Western and Eastern, corresponding to the two deeper basins which are separated by a ridge, running through Italy, Sicily, and Malta to the African coast. In the summer the Western Mediterranean comes under the influence of the Atlantic high pressure area centred near the Azores, while the Eastern Mediterranean is influenced by the low pressure area east of the Mediterranean, which is an extension of the Indian Ocean monsoon. As a rule weather systems move across the Mediterranean from west to east and this is particularly true of depressions in the winter months. The commonest winds over the entire area are from the northerly sector, more from the NW in the western basin, N in the Aegean and NE in the eastern part. Well chronicled down the centuries are the various regional winds, which are a notable feature of Mediterranean weather.

Close to the coast the weather is greatly affected by the height of the land and other topographical features. Local conditions vary enormously, any prevailing wind usually being lighter near the coast, while land and sea breezes have a strong effect. The land and sea breezes are particularly marked in summer months and reach 20 to 30 knots

in some places. The direction of the wind changes not only with the time of day, but also with the orientation of the coast. A reversal in the direction of the wind usually occurs between early morning and late afternoon. Local squalls are more frequent where the coast is mountainous and the wind is frequently accelerated down valleys or between islands. These effects are particularly true for high islands and should be borne in mind when anchoring in the lee of such valleys, particularly in Greece in the meltemi season.

Mistral

'Magistralis' meaning 'masterful' was the name originally given to the cold dry NW wind which holds masterly sway over the Western Mediterranean in both frequency and strength. Now corrupted to 'mistral' or 'maestral', these NW winds are formed when cold air flowing down over France is blocked by the heights of the Alps and is diverted to pour into the Mediterranean via the Rhone valley. The mistral blows strongly in the Gulf of Lions and the Gulf of Genoa, while the Rhone delta area and Marseille receive the full force of the mistral on almost 100 days a year. On average 20 knots, the mistral is frequently stronger and can reach 50-60 knots on occasion. The mistral often reaches the Balearics and Sardinia and on occasion can be felt as far as Malta and North Africa. The French Riviera east of Marseille is sheltered by the mountains behind the coast and the mistral is felt less there.

The mistral blows at intervals throughout the

year, although it is commonest in winter, normally lasting from three to six days and is typified by clear skies. Along the Spanish coast this NW wind is called the *tramontana*, being strong, cold, and dry with many local variations.

Vendavales

These are strong SW winds which blow between North Africa and the Spanish coast, especially in the late autumn and early spring. These winds, which do not last long, can reach gale force and are associated with depressions moving across Spain and Southern France. The *vendavales* are associated with squalls and thunderstorms, but are less strong near the African coast and the NE coast of Spain. They are much stronger when funnelled through the Strait of Gibraltar. Hitting the west coast of Sardinia and the Gulf of Genoa, these strong SW winds are called *libeccio* in Italian.

Sirocco

In general usage, this name is used to describe any winds from the south bringing hot air off the continent of Africa. Due to depressions moving east across the Sahara Desert, the sirocco blows off the north coast of Africa very hot and dry, often laden with sand and dust, thus reducing visibility. As these winds pass across the sea, they pick up some moisture, and so in Spain, Malta, Sicily, Sardinia, and Southern Italy the sirocco arrives at a lower temperature and with a higher humidity than off the African coast. In those places it is a warm hazy wind associated with a low layer of continuous cloud. Rain falling through the dust carried by these winds can sometimes be red or brown.

A similar wind blows off the Arabian peninsula to affect Israel, Lebanon, Cyprus, Crete, and other southern islands in the Eastern Mediterranean, particularly in the transitional periods between seasons, from April to June, September, to October. In Egypt the sirocco is called the *khamsin*, which means 50 in Arabic, because it occurs most frequently in the 50 days following the Coptic Easter. It usually blows at gale force for about one day and is most common from February to April. Later in May and June the *khamsin* is less frequent but can last longer.

Levante

These NE winds blow near the Spanish coast,

reaching gale force in spring (February to May) and autumn (October to December). In summer months from June to September, the *levante* is shorter and has less strength. The *levante* is formed when a depression is situated between the Balearics and North Africa, usually when there is a high pressure area over the European landmass to the north.

The *levante* is most common along the central Spanish coast and can continue into the Strait of Gibraltar, where it is funnelled to become easterly and is known as *levanter*. The *levante* brings lower temperatures and rain, which is often heavy near the coast, while the long fetch produces heavy seas.

Gregale

These strong winds also from the NE are felt in the Central Mediterranean, on the coasts of Sicily and Malta and especially in the Ionian Sea. They flow out of high pressure areas situated over the Balkans and are common in the winter months, especially in February. These winds usually blow at gale force, are cold, and produce a heavy swell. The NE coast of Malta is particularly vulnerable as the main harbours are open to the NE. It was a *gregale* that wrecked St Paul on the Maltese coast in the first century AD.

Meltemi

This wind is more commonly known by its Turkish name 'meltemi' than as the etesian wind, which is taken from the Greek word meaning 'annual'. These regular winds blow steadily over the eastern basin of the Mediterranean all summer, commencing in May or early June and continuing until September or even October. The meltemi is at its strongest and steadiest in July and August. Even when the meltemi is not blowing, or while it is being established in the earlier months, it is rare to get winds from any other direction during this time. Periods of calm can often occur at the beginning of the season. The meltemi has many similarities with a monsoon and can be regarded as an extension of the Indian monsoon caused by the low pressure area east of the Mediterranean.

The meltemi blows from the north in the central Aegean, tending to be more NE in the northern Aegean and NW in the southern areas, extending across the whole eastern basin, although it peters out before reaching the southern shores. The meltemi is a fresh wind on average 15-20 knots, and associated with fine clear weather. Often it reach-

es up to 30 knots, especially in the afternoons and occasionally it reaches 40 knots. It is less strong in the most northerly areas and strongest in the S and SW Aegean. The meltemi tends to decrease at night.

Western Mediterranean

The summers are fine with few storms. Gale force winds do occur, but these are often generated by local depressions over a limited area. Because of this they are difficult to predict and give little warning of their onset, as an impending gale is rarely preceded by a meaningful change in barometric pressure. Strong winds such as *vendavales*, *sirocco*, or *levante* are more common in the transitional months of spring and autumn. The mistral can blow in summer but is much less frequent than at other times of the year. The commonest wind over this area is from the NW, except in the most southerly areas near the African coast, where winds from the E and NE are more frequent. There can be calm periods for several days at a time. There is little rain over this area in summer, except for occasional thunderstorms near some of the coasts.

In winter winds are much more variable and gales more frequent. Depressions from the Atlantic track in from the west, either across France or Spain or through the Strait of Gibraltar. Also some local depressions form in the Gulf of Lions or the Gulf of Genoa and track to the south, bringing strong winds and squally weather. The mistral gales are more frequent in winter months and NW winds predominate over this area. *Vendavales* and *libeccio* blow especially in late autumn and early spring. In spite of the increased frequency of gales in winter, there are also some quiet periods. Although most rain falls during winter as showers, temperatures are mild and there are frequent sunny days.

Eastern Mediterranean

The summers are dominated by the seasonal winds from the northern quarter, which blow strongly but are associated with clear skies and fine weather. Rainfall is scant and almost non-existent on the southern shores. The climate of the eastern basin is a little more continental than the western or central areas, which means fewer fronts, less rain, and a lower humidity. It is noted for long hot summers and short winters. Most of the rain falls in winter.

In winter depressions track in an easterly direction either SE towards Cyprus or NE towards the Black Sea. Although small in size, these depres-

sions can be very violent as they develop rapidly and with little warning. Some violent storms in this area are dangerous as they are local in character, arriving quickly out of a clear sky. Although winds from the northerly sector are commonest in winter too, winds from all directions do occur and there are strong gale force winds particularly from the south. Both S and N winds are more prolonged than E or W winds. November to February are the worst months with cold dry N to NE gales and warm moist SE to SW winds which bring dust. When a depression passes there can be a change from S to N within a few hours. At the transitional period between seasons, such as in April and May, calms can occur for several days.

Currents

The Mediterranean loses more water by evaporation than it receives from rivers emptying into it, but there is a general inflow of water from the Atlantic Ocean at all times of the year. This east-setting current is strongest through the Strait of Gibraltar and along the North African coast, where it averages around 2 knots. After passing through the channel between Sicily and Tunisia it gradually loses its strength as it flows eastward. There is a weaker counterclockwise circulation in both of the two basins of the Mediterranean joined by an east-setting current in the Malta channel between the two areas. In the western basin this current flows north up the west coast of Italy. It turns west along the south coast of France and continues south down the Spanish coast. In the eastern basin, the east-setting current turns north along the coast of Israel and Lebanon, west along the Turkish coast, and completes the circle along the northern coast of Crete. A branch makes a counterclockwise circulation of the Aegean Sea, being joined in its southward movement by water flowing out of the Black Sea and into the Mediterranean via the Bosphorus and Dardanelles. Another branch makes a counterclockwise circulation of the Adriatic.

Excepting the steady current along the North African coast, the actual currents are very variable and are affected considerably both by the direction and force of the wind and local conditions. For example, when the meltemi is blowing, a S to SW setting current predominates in the Central and Western Aegean. The strongest currents are experienced in the Strait of Gibraltar, the Bosphorus, and Dardanelles. Other straits, such as the Strait of Messina, are strongly affected by tidal currents.

22

ROUTES IN THE MEDITERRANEAN SEA

Sailing conditions in the Mediterranean have been reviled and ridiculed by modern sailors more than in any other part of the world and the most repeated saying is that 'in the Mediterranean one either gets too much wind or none at all, and what one gets is on the nose'. Fortunately this is not always true and although the winds encountered in this inland sea cannot be compared in constancy to the trade winds of the Caribbean or Indian Ocean, most offshore passages can be made under sail. The Mediterranean has been plied for many centuries by all kinds of wind driven craft and some of the voyages of ancient time have become legend. Being aware of the capricious nature of Mediterranean winds, ships used to be provided with a set of sturdy oars and although slaves have gone out of fashion, diesel engines can replace them perfectly well.

Because of its long maritime history, the weather of the Mediterranean is well known and this simplifies the task for those intending to do some forward planning. As the sailing season stretches over almost nine months of the year, from early March to the end of November, a lot of ground can be covered if an early start is made. This is recommended especially for those planning to make west to east passages as westerly winds are more common during early spring and late autumn. However, because weather patterns in the Mediterranean are less clearly defined than in other parts of the world, a 'best time' to make a particular passage is far less accurate than elsewhere. With a few exceptions, the weather can rarely be regarded as dangerous in the Mediterranean and the most violent storms almost invariably occur in winter, January and February being the worst months.

The Mediterranean is crisscrossed by innumer-

able routes, far too many to be dealt with in this book. Also, most of these routes involve a certain amount of coastal cruising and so can hardly be described as offshore routes. Finally, the multitude of good harbours throughout the Mediterranean coupled with the unparalleled richness and variety of places to visit ashore means that most people prefer coastal cruising. In consequence, this chapter deals primarily with the most frequented offshore routes.

In the Mediterranean, perhaps more than anywhere else, forward planning is of crucial importance and as this book is aimed primarily at offshore sailors the routes described and suggestions made are meant for sailors who are not normally based in the Mediterranean and for whom the Mediterranean is only part of a longer voyage.

There are two principal gateways into the Mediterranean, Gibraltar being used mainly by sailors arriving from Northern Europe and America, while Port Said witnesses the arrival of sailors who have reached the Mediterranean through the Red Sea and Suez Canal. The latter may be European sailors returning home at the completion of a world voyage, or sailors from other continents, from North America, Australia, New Zealand, or the Far East, in the midst of a circumnavigation. Most of these sailors arrive in the Mediterranean determined to see and do as much as possible in the shortest time possible, which may not be as easy as it first appears. The Mediterranean has been described as the 'cradle of civilisation' and, whether one agrees with that description or not, there is certainly no other region of the world which offers so much to see in such a concentrated area, from archaeological sites to historic cities, beautiful islands and stunning scenery. So the main danger is in trying to cover too much

ground in one season and ending up by seeing much less than planned. Also, the Mediterranean is not the small lake it appears and the distance between Gibraltar and the Suez Canal is twice that between Miami and the Panama Canal!

Because many sailors arrive in the Mediterranean planning to spend only one season there the following suggestions are aimed primarily at them. Those starting off from Gibraltar, especially if they have had to cross the Atlantic to get there, are at a certain disadvantage as the sailing season will be well advanced by the time they arrive. For such late starters it is important to get to the furthest point as quickly as possible. As one can never be completely sure what kind of winds to expect, it is wise to cover as many miles as possible early on so as to have time in hand for the rest of the cruise. Such a tactic is particularly important if one wishes to cruise in the Eastern Mediterranean, in which case one should attempt to sail with as few stops as possible to Northern Greece so as to arrive there before the onset of the strong northerly winds of summer. These winds will then ensure favourable sailing conditions while exploring the delights of the Aegean Sea, whether among the Greek islands or on the Turkish mainland.

Gibraltar is an excellent port in which to prepare for an eastbound passage and, although the current is always favourable, it is worth waiting for a spell of westerly winds before leaving. The Eastern Mediterranean can be reached by either going north or south of Sicily. If the destination is the Ionian Sea, or parts of Greece which are easier reached through the Corinth Canal, it is better to sail north of Sicily and through the Strait of Messina. Otherwise, a southern route, which possibly calls at Malta, is to be favoured if the destination is in Crete, Cyprus, or Port Said. A logical decision is to start a cruise in the northern part of the Aegean in late spring or early summer, after which the summer can be spent exploring the Eastern Mediterranean. By August one should start moving westward and, if neither Malta nor the Balearics were visited on the outward voyage, they can easily be included on the return route to Gibraltar.

In the Eastern Mediterranean favourable northerly winds are common throughout the summer, but by early autumn the winds become more variable, and prolonged calms are frequent, especially on passages to Malta. Because westbound passages have fewer chances of favourable winds than pas-

sages in the opposite direction, one should allow more time for such passages and also be prepared to motor through the unavoidable calms. A stop in Malta is only recommended for boats coming from Port Said, Cyprus, or Crete. Those coming from mainland Turkey or the Greek islands would do better to sail through the Strait of Messina and continue north of Sicily.

Those planning to continue across the Atlantic should attempt to be in Gibraltar not much later than the end of September so as to have sufficient time for the subsequent passage to the Canaries. Those intending to sail to Northern Europe will find that weather conditions in autumn are rarely favourable and, rather than fight the elements, it is probably wiser to leave the boat in the Mediterranean for the coming winter. There are indeed plenty of good ports and marinas where this can be done at a competitive price. Similarly, American sailors should seriously consider leaving their boat in the Mediterranean between seasons, sailing their boats across the Atlantic during one summer, then finding a suitable place to leave the boat for the coming winter. This then leaves them free to return early the following season and be poised to start cruising as early as April. They then have nearly six months of Mediterranean cruising before preparing for a return voyage via the Canaries and Caribbean.

Sailors reaching the Mediterranean by way of the Red Sea are in a much better position as they normally transit the Suez Canal in March or April, thus arriving in the Eastern Mediterranean at the best possible time. Having reached that area so early, they can visit first Cyprus and Eastern Turkey, and possibly Israel as well, before following the earlier suggestion and make for the Northern Aegean by June. From there on, the same itinerary will be followed as the one sailed by boats that have come from the Atlantic.

With more time at one's disposal, and this normally means more than one year, unless one is able to move very fast, other areas of the Mediterranean can be explored, from the French Riviera to North Africa, or the increasingly popular Black Sea, where the gradual easing of restrictions in the former Communist countries has opened new cruising areas to those ambitious enough to reach them.

The Adriatic Sea

CRUISING GUIDES: *Adriatic Pilot*.

The war in former Yugoslavia put out of bounds one of the most attractive cruising areas in Europe. While hostilities appear to have spared most of the offshore islands, it will be many years before this coastline returns to normality. The small coastline of Slovenia has been largely unaffected by the war waged by its neighbours, while Croatia is making determined efforts to attract cruising boats once again to its attractive coastline. Foreign boats have started trickling back but nowhere in the huge numbers seen in the past. While the present situation continues no one should enter that area before having obtained confirmation that it is safe to do so. Albania itself is also slowly coming out of the cold and yachts which have stopped in one of the Albanian ports have been allowed to spend a short time there. Compared to the diversity of Croatia, the east coast of Italy has very little to offer and there is only a limited number of safe harbours along the entire coast.

Because of its narrowness and other specific factors, weather conditions in the Adriatic tend to be very localised. The most dangerous wind is the *bora*, a violent northerly wind that occurs mostly in winter. There is a north-setting current along the eastern shore which can be used to advantage when making northbound passages. It is generally advisable to favour the eastern shore when bound in either direction, because of the availability of sheltered anchorages.

The Aegean Sea

CRUISING GUIDES: *Greek Waters Pilot*, *Saronic*, *Turkish Waters Pilot*.

The islands of the Grecian archipelago and the Turkish coast of Asia Minor offer a great variety of cruising opportunities and this is reflected in the large number of sailing boats that ply the Aegean each summer. Navigation rarely presents any real problems, there are countless safe harbours and anchorages, all dangers are clearly marked on charts and even the traditional rivalry between Greece and Turkey affects visiting sailors only in a tangential way.

Ideally, the Aegean should be cruised from north to south, and because of the prevailing northerly winds of summer it is recommended to arrive in the Northern Aegean before the end of May so as to benefit from a favourable wind for the following three months. The ever increasing popularity of these cruising grounds makes most ports very

crowded during the peak holiday months of July and August, when more secluded anchorages should be sought out. As the safe cruising season extends from March to November it is possible to visit most harbours either before or after the great summer invasion. This may be also the time to visit some of the adjacent areas, such as Istanbul or the Black Sea.

When the meltemi is blowing strongly offshore, violent gusts often occur in the lee of high ground. Accelerated down the land, this can produce 40-50 knots of wind very suddenly in an area previously calm. This effect occurs particularly on steep southern coasts, both of islands and the mainland. The meltemi is also funnelled through straits, ravines, and between islands. When sheltering on a southerly coast during a northerly gale this squally effect must be allowed for.

The Marmara and Black Sea

CRUISING GUIDES: *Black Sea Cruising Guide*.

Most boats reach this area from the SW, island hopping through the Aegean, although a few boats arrive in the Black Sea by way of the Danube. The passage through the Aegean should be undertaken in spring, before the onset of the meltemi, when winds are either light or non-existent and one must be prepared to motor. Because of the strong out-flowing current in the Dardanelles, tacking against a NE wind is almost impossible, the task made even more difficult by the large amount of shipping. A weak counter-current is usually felt on the European side of the strait, which should be favoured as far as Chanakkale, where it is compulsory to cross to the Asian side to clear into Turkey. The rest of the Dardanelles and the crossing of the Sea of Marmara is best done in daily stages, both because of the amount of shipping and the usual lack of wind at night.

Passing through the Bosphorus should only be attempted in daylight and the European side of the strait should be favoured where a weaker counter-current will be found. A thick haze often occurs on summer mornings, which makes navigation very difficult in the strait due to the large number of ships.

Until not so long ago, cruising in the Black Sea used to be limited to a few Turkish ports and the designated ports of entry of the other countries: Bulgaria, Romania, and the Soviet Union. The fall of Communism has certainly brought about an

ROUTES IN THE MEDITERRANEAN SEA

opening up of all those countries, but unfortunately foreign cruising boats are still submitted to endless formalities. Bulgaria and Romania are now welcoming cruising yachts openly but in both Russia and the Ukraine foreign yachts are supposed to arrive only after having received an official invitation by either a yacht club or a shipping agency. In all these countries tourist visas should be obtained in advance for every crew member. One of the most attractive Black Sea countries is Georgia, but civil war in this former Soviet republic has made it into a no-go area for foreigners.

The Black Sea enjoys a climate very similar to the Mediterranean in summer, being mainly fine and

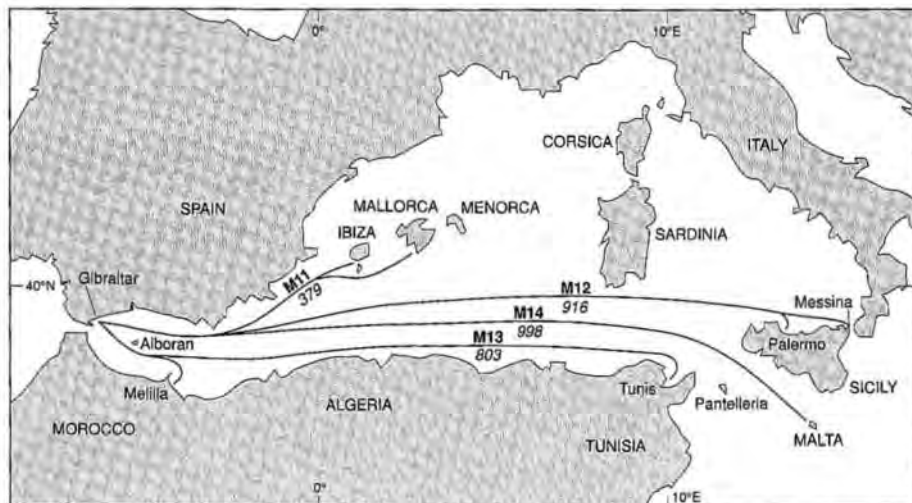
sunny, with winds predominantly from the NW or W formed by the same system which generates the meltemi. In winter the weather is much colder, especially in more northerly parts where ice can occur. Very variable conditions prevail in the transition months, April–May and September–October, the winds changing quickly both in force and direction. Local effects as well as land and sea breezes are well marked. In the Dardanelles and Bosphorus NE winds are the most frequent as there is a general airflow from the Black Sea into the Aegean. If the wind is not blowing from the NE in these narrows it is usually from the opposite SW direction.

M10 MEDITERRANEAN ROUTES FROM GIBRALTAR

M11 Gibraltar to the Balearics	449
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M13 Gibraltar to North Africa	450
M14 Gibraltar to Malta	452

With the Strait of Gibraltar safely behind them, eastbound boats have a much easier task when leaving Gibraltar than boats setting off in the opposite direction. The only time when one should not

consider leaving Gibraltar is during strong easterly winds. Generally, winds tend to be funnelled either west or east in the strait. At Gibraltar westerly winds predominate in winter and easterly in



M10 Mediterranean routes from Gibraltar

summer. *Levanders* are more frequent from July to October and can blow for up to 15 days at a time, although not always too strongly, their average strength being around 15 knots. In winter the *levanter* is shorter but stronger, bringing rain, clouds,

and haze. *Vendavales* also occur most frequently from November to March. In the lee of the Rock the wind causes eddies blowing strongly from different directions only a short distance apart.

M11 Gibraltar to the Balearics

BEST TIME:	May to June			
CHARTS:	BA: 2717 US: 301			
PILOTS:	BA: 45 US: 130, 131			
CRUISING GUIDES:	<i>East Spain Pilot (Islas Baleares), Spanish Mediterranean Yachtsman's Directory.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M111 Europa 38°04'N, 5°20'W	M112 Gata S 36°35'N, 2°10'W M113 Palos 37°35'N, 0°30'W	M114 Espalmador 38°48'N, 1°25'E	Ibiza 38°54'N, 1°28'E	379
M111 Europa	M112 Gata S M113 Palos M115 Formentera E 38°40'N, 1°40'E	M116 Ibiza S 38°51'N, 1°28'E M117 Mallorca SW 39°28'N, 2°37'E	Ibiza Palma 39°33'N, 2°38'E	395 454

From any of the marinas or the anchorage near Gibraltar airport, boats should make their way to Europa Point and WP M111, south of that remarkable landmark. From that point the recommended route runs parallel to the Spanish coast keeping at least 20 miles offshore where steadier winds will be found. Along the entire length of the Spanish coast there are several good harbours in which shelter can be sought in bad weather. A favourable east-setting current is felt at least as far as Cabo de Gata, which is passed at a distance of approximately 10 miles to the south through WP M112. From this point the route turns NE passing close to Cabo de Palos through WP M113. It is at this point that boats bound for ports further up the Spanish coast should continue on a route parallel with that coast, whereas boats bound for the Balearics head offshore for WP M114, if the intention is to call first at Ibiza, in which case the recommended route passes west of Formentera. WP M114 is five miles west of Espalmador Islet and there are several deep channels between the southern extremity of Ibiza and

Espalmador Islet. The currents in the channels are strong and often set against the prevailing wind, which can result in rough seas in strong winds. Under such circumstances it is better to pass east of Formentera, which is also the recommended procedure if one is bound directly for Palma de Mallorca. In this case, from WP113 a course is set for WP M115, off the SE point of Formentera. From there, boats bound for Ibiza should alter course for WP M116, outside Ibiza harbour, whereas those bound for Mallorca should set a course for WP M117, in the Bay of Palma in the approaches to Palma de Mallorca. There are several marinas in Palma and the most convenient, nearest to the town centre, is run by the Real Club Nautico, located in Darsena San Pedro, in the eastern part of the port. The club monitors VHF channel 9 permanently. Arriving yachts should go to the reception dock to be assigned a berth. Club de Mar, located inside Porto Pi, in the western part of the harbour, is a much larger marina but further from town.

M12 Gibraltar to Sicily

BEST TIME:	May to June			
CHARTS:	BA: 4301			
	US: 301			
PILOTS:	BA: 45			
	US: 130, 131			
CRUISING GUIDES:	<i>Italian Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M121 Europa 36°04'N, 5°20'W	M122 Gata S 36°35'N, 2°10'W			
	M123 Sardinia S 38°30'N, 8°00'E	M124 Gallo 38°17'N, 13°20'E	Palermo 38°07'N, 13°22'E	916
M121 Europa	M122 Gata S			
	M123 Sardinia S			
	M125 Vulcan 38°20'N, 15°00'E	M126 Peloro 38°19'N, 15°39'E		1016

The same route, and similar directions as for route M11 should be followed as far as Cabo de Gata. From there the route continues in an easterly direction to WP M123, some 35 miles SW of Sardinia. At that point, boats bound for the Sicilian capital should alter course for WP M124, off Cape Gallo, in the approaches to Palermo. Boats bound for the Strait of Messina should continue almost due east to WP M125, to pass south of Vulcan Island, and make landfall at WP M126, off Cape Peloro, in the northern approaches to the Strait of Messina.

Having reached the legendary narrows separating Sicily from mainland Italy, those intending to stop have a choice of ports on the east coast of Sicily, although the busy port of Messina should be avoided because of the continuous ferry traffic.

In the Strait of Messina the wind tends to blow either in a northerly or southerly direction along the axis of the strait. Sometimes the wind will be NE on the eastern side, NW on the western side, and very light in the middle. Alternatively it can be S to SE in the southern approaches, changing abruptly to NW in the northern approaches, which creates a heavy sea. Violent gusts come off the high ground, which together with strong tidal currents and a number of small whirlpools and eddies contribute to the strait retaining the flavour of Scylla and Charybdis of the time of Odysseus. A line of bores called *tagli* can occur at the change of tide. It is therefore essential to time one's transit of the strait with a favourable tide.

M13 Gibraltar to North Africa

BEST TIME:	May to October			
CHARTS:	BA: 4301			
	US: 301			
PILOTS:	BA: 45			
	US: 131			
CRUISING GUIDES:	<i>North Africa.</i>			

M10 MEDITERRANEAN ROUTES FROM GIBRALTAR

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M130 Europa 36°04'N, 5°20'W	M131 Forcas 35°33'N, 3°00'W		Melilla 35°17'N, 2°56'W	135
			Sidi Fredj 36°46'N, 2°51'W	192
M130 Europa	M132 Alboran S 35°50'N, 3°00'W			
	M133 Tenes 36°45'N, 1°20'E			
	M134 Bengut 37°20'N, 4°00'E			
	M135 Bougaroni 37°20'N, 6°25'E			
	M136 Sorelles 37°20'N, 8°35'E			
	M137 Enghela 37°30'N, 9°45'E		Bizerte 37°16'N, 9°53'E	755
	M138 Plane 37°12'N, 10°25'E	M139 Carthage 36°53'N, 10°25'E	La Goulette 36°49'N, 10°18'E	803

There is a large choice of destinations on the North African shore, from the small Spanish possessions of Ceuta and Melilla all the way to the east coast of Tunisia. The latter has become the favourite cruising destination in North Africa, mainly as a result of the opening of a number of good marinas. Few boats stop in Algeria, where yachting facilities continue to be very basic.

From WP M130, south of Europa Point, the route goes south of Alboran Island and stays close to the North African coast to benefit from the favourable east-setting current. If the intention is to call at either Melilla or Sidi Fredj, in Algeria, the initial course goes to WP M131, off Cape Tres Forcas, from where the course can be altered for the intended port of destination. Sidi Fredj has a marina and is reported to have the best yachting facilities in Algeria.

Boats bound for ports further east on the Algerian coast or ports in Tunisia should also take a route that goes south of Alboran Island. Their first WP will be M132, some ten miles south of that island, from where the course is altered for WP

M133, off Cape Tenes. From that point, the route follows the North African coast closely to take advantage of the favourable current, passing through a number of intermediate waypoints, all of which avoid sailing into territorial waters. Staying a prudent distance off the coast is also advisable to avoid the areas frequented by local fishing boats, especially at night, as some of the smaller boats do not show lights. One of the dangers to be avoided along this route are the Sorelles rocks, SW of Galite Island. From WP M136, south of those rocks, the course is altered for WP M137, North of Cape Enghela. Having reached this point, boats intending to call at Bizerte should alter course for the coast, whereas those bound for Tunis should set a SE course for WP M138 so as to pass SE of Cani Island. From WP M138, east of Plane Island, the course turns due south and makes landfall at WP M139, off Cape Carthage, in the approaches to the Tunisian capital. The nearest marina is at La Goulette and arriving boats should make their way there to complete entry formalities.

M14 Gibraltar to Malta

BEST TIME:	May to June, November			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45 US: 130, 131			
CRUISING GUIDES:	<i>North Africa, Yachtsman's Handbook to Malta.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M141 Europa 36°04'N, 5°20'W	M142 Gata SE 36°25'N, 2°00'W M143 Sentinelle S 38°00'N, 9°40'E M144 Pantelleria 36°55'N, 12°00'E	M145 Gozo 36°05'N, 14°27'E	Malta NE 35°56'N, 14°32'E	Valletta 35°54'N, 14°31'E
				998

A more offshore route than M13 can be sailed by boats bound for Malta, unless one is determined to take full advantage of the favourable east-setting current along the African coast, in which case the same directions apply as far as WP M137, at the entrance into the Skerki Channel at the NE extremity of Tunisia.

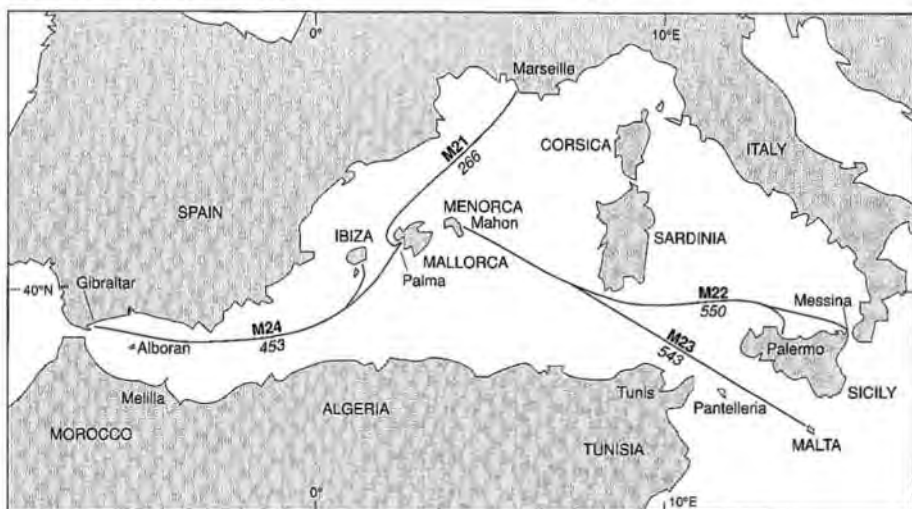
During the summer months, from May to September, the recommended route does not follow the African shore so closely and passes north of Alboran Island as the advantages to be gained by sailing an inshore route are probably cancelled out by the disadvantages. Along the entire North African coast, vessels should keep outside of territorial waters and also pay attention to local fishing boats, especially at night as many do not show lights. Westerly winds are more likely to be encountered along this route during the remaining months of the year, from October to April, and therefore this passage is best planned either at the beginning or end of the season. During summer, if consistent easterly winds are met, it is usually better to make the voyage in stages, stopping either in Spain and the Balearics, or along the African coast. The African coast should be avoided in winter when strong northerly gales make it a danger-

ous lee shore. If easterly winds persist after leaving Gibraltar, either in summer or winter, better conditions will be experienced by staying closer to the Spanish coast than North Africa. Such a route continues eastwards as far as the south of Sardinia before tacking across the channel between Cape Bon and Sicily.

The direct route takes its departure from WP M141, south of Europa Point, from where an initial course is set for WP M142, 20 miles SE of Cabo de Gata. From there a long offshore leg goes all the way to WP M143 passing halfway between North Africa and Sardinia. From that point, the course become SE and passes through the Skerki Channel to pass close to the north of the island of Pantelleria. The course continues in almost the same direction to WP M145, east of Gozo. From there the course is altered for WP M146 so that landfall is made north of the Maltese capital. Arriving boats should contact Valletta Port Control on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre can be contacted on VHF channel 9 to request docking information.

M20 ROUTES FROM THE BALEARIC ISLANDS

M21 <i>Balearics to French Riviera</i>	453
M22 <i>Balearics to Messina Strait</i>	454
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M24 <i>Balearics to Gibraltar</i>	455



M20 Routes from the Balearic Islands

The Balearic Islands, and especially Mallorca, are now one of the top yachting centres in the world and both docking and repair facilities are of the highest standard. Very few cruising boats visiting the Mediterranean miss calling at the Balearics and indeed they are an attractive place to explore and also an excellent place at which to prepare the boat for a long passage. This can be of particular inter-

est to those planning to cross the Atlantic to the Caribbean and for whom a stop in the Balearics at the end of summer has a great attraction.

Summers are hot, but winters are mild, the main reason for the Balearics also being one of the main tourist centres in the Mediterranean. Northerly winds predominate in summer and gale force winds are confined to the winter season.

M21 *Balearics to French Riviera*

BEST TIME:	May to October
CHARTS:	BA: 4301 US: 301
PILOTS:	BA: 45, 46 US: 131
CRUISING GUIDES:	<i>South France Pilot, Mediterranean France and Corsica, Guide to French Mediterranean Ports.</i>

ROUTES IN THE MEDITERRANEAN SEA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M211 Dragonera 39°35'N, 2°17'E		M212 Pomègues 43°10'N, 5°20'E	Marseille 43°21'N, 5°19'E	266

During the summer months the prevailing wind on this route is NW. The worst thing that can affect a vessel bound for the French coast is to encounter a mistral, which can be very violent in the Gulf of Lions. The mistral affects mainly the western parts of the French Riviera, ports lying east of St Raphael being less affected. A direct course can be sailed from the Balearics to practically every port on the French Riviera. If a mistral is forecast it is better to close with the coast immediately and then reach the intended destination by sailing under the protection of the coast, or go into one of the many ports to seek shelter should the weather deteriorate.

Depending on the subsequent destination, one should start cruising at one or the other end of the Riviera. Generally it is better to make landfall at a western port, such as Marseille, and then sail east along the coast as far as Nice or even beyond before taking off for Corsica or Italy. Such a route is also attractive for those planning to return to the

Balearics, as a complete circle can be accomplished by sailing from the French Riviera to Corsica and from there back to the Balearics. Such a route also uses the prevailing winds to best advantage.

Boats leaving from Palma de Mallorca have to reach the open sea before a course can be set for a French port. Because of the prevailing summer winds it is better to leave from the west of Mallorca by making one's way to Isla Dragonera, the small island lying off the western extremity of Mallorca. Having reached WP M211, boats bound for Marseille can set a direct course for WP M212, in the SE part of the Bay of Marseille, south of Pomègues Island. There are several marinas in or around Marseille, but for short term visitors the most convenient is the one inside the old port (Vieux Port), which is located in the centre of Marseille. This is entered between the two ancient forts, the reception dock for visitors being immediately on the starboard side.

M22 Balearics to Messina Strait

BEST TIME:	April to October			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45 US: 131			
CRUISING GUIDES:	<i>Italian Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M221 Menorca 39°52'N, 4°19'E	M222 Sardinia S 38°30'N, 8°00'E	M224 Gallo 38°17'N, 13°20'E	Palermo 38°07'N, 13°22'E	451
	M223 Vulcan 38°20'N, 15°00'E	M225 Peloro 38°19'N, 15°39'E		550

The route from either Mallorca or Menorca passes so close to Sardinia that most boats make a small detour to visit at least the southern part of this island. Because of its location at the SE extremity of the Balearics, Puerto Mahon on Menorca is a good place to leave from. From WP M221, outside Mahon, an initial course is set for WP M222, SW of

Sardinia. Boats intending to stop first at Palermo should alter course for WP M223, off Cape Gallo, in the approaches to the Sicilian capital. Boats bound for the Strait of Messina nonstop should continue almost due east from WP M223 to WP M224, south of Vulcan Island, and make landfall at WP M225, off Cape Peloro, in the northern

M20 ROUTES FROM THE BALEARIC ISLANDS

approaches to the Strait of Messina.

Having reached these narrows separating Sicily from mainland Italy, those intending to stop have a choice of ports on the east coast of Sicily. A port to be avoided is the busy port of Messina because of the continuous ferry traffic. For more details on

weather conditions in the Strait of Messina see route M12. Boats bound for the Eastern Mediterranean and wishing to avoid Messina Strait, can do so by passing south of Sicily and possibly calling at Malta (see route M23).

M23 Balearics to Malta

BEST TIME:	April to October			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45 US: 131			
CRUISING GUIDES:	<i>Yachtsman's Handbook to Malta, North Africa.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M231 Menorca 39°52'N, 4°19'E	M232 Sentinelle E 38°00'N, 9°20'E M233 Pantelleria 36°55'N, 12°00'E M234 Gozo 36°05'N, 14°27'E	M235 Malta NE 35°56'N, 14°32'E	Valletta 35°54'N, 14°31'E	543

Similar directions apply for this route as far as the south of Sardinia as those described in route M22. Having reached WP M232, between North Africa and Sardinia, the course continues in a SE direction and passes through the Skerki Channel, then WP M233, NE of the island of Pantelleria and on to WP M234, east of Gozo. From there the course can be altered for WP M235 so that landfall is made north

of the Maltese capital. Valletta Port Control should be contacted on arrival on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre, which administers the various marinas in the Maltese capital, can be contacted on VHF channel 9 to request docking information.

M24 Balearics to Gibraltar

BEST TIME:	May to September			
CHARTS:	BA: 2717 US: 301			
PILOTS:	BA: 45 US: 130, 131			
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M24A M241 Mallorca SW 39°28'N, 2°37'E	M243 Formentera E 38°40'N, 1°40'E M244 Gata SE 36°25'N, 2°00'W	M245 Europa 36°04'N, 5°20'W	Gibraltar 36°08'N, 5°21'W	453

ROUTES IN THE MEDITERRANEAN SEA

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M24B				
M242 Ibiza S	M243 Formentera E			
38°51'N, 1°28'E	M244 Gata SE	M245 Europa	Gibraltar	402

This route should have favourable winds at least as far as Cabo de Gata. It is at that point that a contrary east-setting current becomes most noticeable, and so the mainland coast should not be approached too soon. Boats leaving from Palma de Mallorca, from WP M241 should set an initial course which passes south of Ibiza and east of Formentera. From WP M243 a new course is set to pass through WP M244, well to the south of Cabo de Gata. The Spanish coast should be approached only after Cabo de Gata has been passed as the east-going current is strongest in the vicinity of this cape. The route then follows the coast of Spain closely so as

to avoid the stronger current offshore. If strong westerly winds are encountered when approaching Gibraltar it is better to seek shelter in a Spanish port along the Costa del Sol to wait for a change rather than try to make headway against both contrary wind and current. See also route AN16 (page 44) for details on weather conditions in the Strait of Gibraltar as well as directions for negotiating the strait.

Having made landfall south of the light on Europa Point, arriving boats should proceed to the customs dock, in Marina Bay, south of the runway, to complete formalities.

M30 ROUTES FROM MEDITERRANEAN FRANCE

M31 French Riviera to Balearics	457
M32 French Riviera to Messina Strait	458
M33 French Riviera to Malta	458
M34 French Riviera to Gibraltar	459



M30 Routes from Mediterranean France

The French Riviera, and particularly the Côte d'Azur, from Marseille to the Italian border, has one of the highest concentrations of marinas in the world. As to be expected, yachting facilities are of the highest standard. Sailors hailing from other parts of the world are somewhat at a loss when a decision has to be made concerning cruising along this coast. One important suggestion is to avoid arriving at the height of summer, in July and August, when all ports and marinas are full and in most places it is impossible to find docking space. A much better time is either late spring or early autumn, when the weather is more pleasant and

neither the ports nor the resorts ashore are so crowded.

The weather is pleasant for most of the year, although summers tend to be hot. The Gulf of Lions is especially noted for sudden changes in wind and weather, with very different conditions in places near together. The strongest wind is the mistral, which can produce unpleasant conditions. After the mistral, the next common wind is the *marin*, which blows warm and moist, SE to SW off the sea, and although not as strong as the mistral it raises a heavy sea.

M31 French Riviera to Balearics

BEST TIME:	April to October			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45, 46 US: 131			
CRUISING GUIDES:	<i>East Spain Pilot (Balearics), Spanish Mediterranean Yachtsman's Directory.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M31A				
M311 Menton 43°45'N, 7°30'E		M312 Menorca E 39°52'N, 4°22'E	Mahon 39°52'N, 4°19'E	274
Route M31B				
Marseille 43°21'N, 5°19'E	M313 Pomègues 43°10'N, 5°20'E	M314 Dragonera 39°35'N, 2°17'E	Palma 39°33'N, 2°38'E	283

Marseille, or one of the ports in its vicinity, is a good point of departure for boats that have cruised along the French Riviera coast in a westerly direction. Those who may have cruised in the opposite direction will take their departure from a port further east, possibly as far as Menton, near the Italian border. For those starting that far east, a detour to Corsica has certain attractions. If sailing nonstop, a convenient port of arrival in the Balearics is Mahon, on Menorca (route M31A). Landfall is made at WP M312, off Cabo Negro, from where the narrow channel is followed into the port of Mahon.

Boats leaving the Riviera from further west (route M31B), such as Marseille, should take their

departure from WP M313, east of the small island of Pomègues, in the SE part of the Bay of Marseille. From that point a direct course can be sailed across to Mallorca. Boats bound for Palma de Mallorca, should make their landfall on the NW coast of the island and then follow Mallorca's west coast into Palma. There are a number of marinas in the Bay of Palma, while in Palma itself the most convenient, as it is nearest to the town centre, is the marina run by the Real Club Nautico, located in Darsena San Pedro, in the eastern part of the port. The club monitors VHF channel 9 permanently. Arriving yachts should go to the reception dock to be assigned a berth.

M32 French Riviera to Messina Strait

BEST TIME:	May to October			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45, 46 US: 130, 131			
CRUISING GUIDES:	<i>Italian Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M321 Ferrat 43°40'N, 7°17'E	M322 Sanguinaire 41°54'N, 8°35'E Bonifacio 41°23'N, 9°06'E M323 Maddalena NE 41°16'N, 9°27'E	M325 Peloro 38°19'N, 15°39'E	Ajaccio 41°55'N, 8°44'E	127
	M324 Panaria 38°35'N, 15°00'E			514

Most boats bound for the Strait of Messina and beyond will probably stop in Corsica on their way south as the island straddles the direct route south. Because the west coast of Corsica is more attractive and has a number of good harbours, most boats leaving the Riviera make straight for Calvi or Ajaccio. Favourable winds can be expected during the summer months and even the mistral blows from the right direction, although it is usually associated with rough seas. From WP M321, off Cap Ferrat, in the approaches to the port of Nice, a direct course can be sailed to WP M322, off Ajaccio. A first suggested stop is at this attractive Corsican port.

From Ajaccio the route continues around the SW coast of Corsica and reaches the Tyrrhenian Sea through the Bonifacio Strait. Another suggested stop is at the small port of Bonifacio, on the north side of the strait. This strait, separating Corsica from Sardinia, is an intricate waterway dotted with

rocks and islets, although navigation through the channels that traverse it is not too difficult. Having passed through the strait and regained the open sea, from WP M323, NE of the Italian island of Maddalena, a direct course can be set for WP M324, between Panaria and Salina, in the Aeolian Islands. A slight course alteration is needed to reach WP M325, off Cape Peloro, in the northern approaches to the Messina Strait.

The timing of the passage through this strait separating Sicily from mainland Italy should be calculated in relation to the state of the tide. The currents through the Messina Strait depend on the tide and can attain over 4 knots at springs. The southgoing stream has a longer duration and this can be further increased by a northerly wind. Each turn of the tide is accompanied by one or more tidal bores. These waves are only dangerous to small craft if a strong wind is blowing against the tide.

M33 French Riviera to Malta

BEST TIME:	May to September
CHARTS:	BA: 4301 US: 301
PILOTS:	BA: 45, 46 US: 130, 131
CRUISING GUIDES:	<i>Yachtsman's Handbook to Malta, North Africa.</i>

M30 ROUTES FROM MEDITERRANEAN FRANCE

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M33A				
M331 Pomègues 43°10'N, 5°20'E	M332 Toro 38°50'N, 8°10'E			
	M333 Pantelleria 36°55'N, 12°00'E			
	M334 Gozo 36°05'N, 14°27'E	M335 Malta NE 35°56'N, 14°32'E	Valletta 35°54'N, 14°31'E	846
Route M33B				
M336 Ferrat 43°40'N, 7°17'E	M337 Sanguinaire 41°54'N, 8°35'E		Ajaccio 41°55'N, 8°44'E	127
	Bonifacio 41°23'N, 9°06'E			
	M338 Maddalena E 41°15'N, 9°36'E			
	M333 Pantelleria			
	M334 Gozo	M335 Malta NE	Valletta	607

Favourable winds can be expected for most of this passage during the summer months. Depending on the port of departure, there is a choice of routes, as one can go either east or west of Corsica. The more direct route (M33A) stays west of both Corsica and Sardinia, and is recommended especially if leaving from one of the more western ports on the French Riviera. If leaving from a port such as Marseille, from WP M331, east of the small island of Pomègues, in the SE part of the Bay of Marseille, a direct course can be set for WP M332, off Sardinia's SW point. From there, the route runs through Skerki Channel to WP M333, north of the island of Pantelleria.

Boats leaving from one of the more eastern ports,

such as Nice, may prefer to sail first to Corsica, and from there take a more indirect route (M33B) by going through the Strait of Bonifacio and then east of Sardinia. On this route, from WP M338, east of Maddalena, a direct course can be set for WP M333, north of Pantelleria. The two routes join at that point and continue towards WP M334, off Gozo, before the course is altered for WP M335, north of La Valletta. Valletta Port Control should be contacted on arrival on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre can be contacted on VHF channel 9 to request docking information.

M34 French Riviera to Gibraltar

BEST TIME:	April to May, October
CHARTS:	BA: 4301 US: 301
PILOTS:	BA: 45, 46 US: 130, 131
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot (Costa del Sol)</i>

ROUTES IN THE MEDITERRANEAN SEA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Marseille 43°21'N, 5°19'E	M341 Pomègues 43°10'N, 5°20'E			
	M342 Antonio 38°50'N, 0°40'E			
	M343 Palos 37°35'N, 0°30'W			
	M344 Gata SE 36°25'N, 2°00'W	M345 Europa 36°04'N, 5°20'W	Gibraltar 36°08'N, 5°21'W	707

The number of boats which sail this entire route without stopping is very small, especially as the Balearics, which straddle the direct course, are a very tempting stop. Boats leaving from ports in the eastern part of the French Mediterranean coast may sail a course which passes to the east of the Balearics. The direct route from more western ports, such as Marseille, passes to the west of the Balearics and stays close to the Spanish coast for most of its length.

As far as the Balearics favourable winds are to be expected throughout the summer months. The chances of easterly winds in the second half of the passage are higher in late spring and autumn. There is also a higher proportion of easterly winds along the North African coast, so it may pay to take a course which runs closer to that shore, but not close enough to be affected by the east-setting current.

Boats leaving from Marseille and WP M341, east of the small island of Pomègues, in the SE part of the Bay of Marseille, should set an initial course for WP M342, to pass halfway between Ibiza and Cabo

San Antonio, on the Spanish mainland. The course continues parallel with the Spanish coast to WP M343, off Cabo Palos, before the course is altered for WP M344, so as to pass well to the south of Cabo de Gata and avoid the strong current that sets to the east around that cape. The Spanish coast should be approached only after Cabo de Gata has been passed as the eastgoing current is strongest in the vicinity of the cape. The route then follows the coast of Spain closely so as to avoid the stronger current offshore. The alternative, as explained above, is to seek better winds by favouring the African coast.

Having made landfall south of the light on Europa Point, boats intending to stop in Gibraltar should make their way to the customs dock, in Marina Bay, to complete formalities. The dock is located south of the runway and is reached by going past North Mole.

Those continuing into the Atlantic without stopping should consult route AN16 (page 44) for details on weather conditions in the Strait of Gibraltar as well as directions for negotiating the strait.

M40 ROUTES FROM SICILY

M41 <i>Sicily to Greece</i>	461
M42 <i>Sicily to French Riviera</i>	463
M43 <i>Sicily to Balearics</i>	463
M44 <i>Sicily to Gibraltar</i>	464
M45 <i>Sicily to Port Said</i>	465

Most boats on a transmediterranean passage call at a Sicilian port or at least sail through the Messina Strait on their way to their destination. Situated at the crossroads of several offshore routes, Sicily has plenty of good ports in which to make a longer or shorter stop. For boats preparing to leave on a pas-

sage to Greece or beyond, there are several ports south of the Messina Strait. The small port at Taormina has the advantage of not only being close to the strait, but also convenient for visiting Mount Etna.

M40 ROUTES FROM SICILY



M40 Routes from Sicily

In summer a strong sea breeze blows onshore in the daytime in Sicily, being NE at Palermo, NE to S at Syracuse, and S to SW at Agrigento, on the south coast. In the Strait of Messina the wind tends to blow either in a N or S direction along the strait, depending on the prevailing conditions. Sometimes the wind will be NE on the eastern side, NW on the western side, and very light in the middle. Alternatively it can be S to SE in the southern approaches, changing abruptly to NW in the northern approaches, which creates a heavy sea. Violent gusts come off the high ground, which together with strong tidal currents and a number of small

whirlpools and eddies contribute to the strait retaining the flavour of Scylla and Charybdis as experienced by Odysseus. Mirages of a multiple image type are sometimes seen in the strait. The currents through the Messina Strait depend on the tide and can attain over 4 knots at springs. The southgoing stream has a longer duration and this can be further increased by a northerly wind. Each turn of the tide is accompanied by several tidal bores. These waves are only dangerous to small craft if a strong wind is blowing against the tide. The state of the tide should be assessed correctly so as to transit the strait with a fair tide.

M41 Sicily to Greece

BEST TIME:	May to October
CHARTS:	BA: 1439 US: 302
PILOTS:	BA: 45, 47, 48 US: 131, 132
CRUISING GUIDES:	<i>Greek Waters Pilot, Saronic</i>

ROUTES IN THE MEDITERRANEAN SEA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M41A				
M410 Messina	M411 Armi			
38°11'N, 15°37'E	37°54'N, 15°37'E			
	M412 Spartivento	M413 Zante	Patras	309
	37°55'N, 16°06'E	38°00'N, 20°30'E	38°15'N, 21°44'E	
Route M41B				
M410 Messina	M411 Armi			
	M414 Sapientza			
	36°45'N, 21°35'E			
	M415 Tainaron			
	36°22'N, 22°30'E			
	M416 Kithera	M417 Malea		395
	36°26'N, 22°56'E	36°23'N, 23°12'E		
Route M41C				
M410 Messina	M411 Armi			
	M414 Sapientza			
	M415 Tainaron			
	M418 Antikithera	M419 Dhia	Iraklion	516
	35°49'N, 23°20'E	35°30'N, 25°08'E	35°16'N, 25°09'E	

Having passed through the Strait of Messina, boats bound for the Aegean can reach it either through the Corinth Canal (route M41A), or by rounding the southern tip of the Peloponnese (route M41B). The northern route has the advantage of reaching ports in the Saronic Gulf as well the central islands of the Aegean more directly. This is particularly important in summer, when the meltemi is blowing strongly and contrary winds can make it very difficult to reach the same islands if coming from the SW. In spring and autumn the southern route is an acceptable alternative. The latter is also to be preferred if bound for Crete, Rhodes, or points further east.

Once the strait has been left safely behind, from WP M410, off the port of Messina, the initial course goes due south to WP M411, off Capo dell' Armi. Boats sailing the northern route should alter course for WP M412, south of Cape Spartivento. From that point a direct course can be set across the Ionian Sea for WP M413, north of Zante Island in the approaches to the Gulf of Patras. Those who wish to clear into Greece can do so in the port of Zante, on the east coast of the island of the same name.

Those who prefer to continue towards the Corinth Canal may clear into Greece further east, such as in the port of Patras, close to the western entrance to the canal.

From WP M411, south of the Messina Strait, boats sailing the southern route can set a direct course for WP M414, SW of Sapientza Island. From this point, the route goes around the three fingers of the Peloponnese by passing through WPs M415, M416, and finally reaching M417. The last waypoint, off Cape Malea, is at the SW extremity of the Aegean Sea, with its multitude of destinations.

Boats bound for Crete (route M41C) should leave the above route at WP M415 and set a new course for WP M418, south of Antikithera Island. From there, the route runs parallel to the north coast of Crete to WP M419, west of Dhia Island, in the approaches to Iraklion, the main port and capital of Crete. Boats should proceed into the old Venetian harbour, where there are a number of pontoons for yachts. If there is no free space cruising boats may use the quay immediately to the east of the small boat harbour.

M42 Sicily to French Riviera

BEST TIME:	May to June, September, October			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45, 46 US: 130, 131			
CRUISING GUIDES:	<i>Mediterranean France and Corsica, South France Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M421 Peloro 38°19'N, 15°39'E	M422 Panaria 38°35'N, 15°00'E M423 Maddalena NE 41°16'N, 9°27'E M424 Pertusato 41°20'N, 9°05'E	M425 Porquerolles 43°00'N, 6°20'E	Hyères 43°05'N, 6°10'E	521

The direct route from the Strait of Messina to Corsica passes through the Aeolian Islands and traverses the Tyrrhenian Sea to the Strait of Bonifacio. There are several channels leading through these narrows, the main passage (Boca Grande) being the easiest to negotiate. This route is often taken by boats heading for the Canal du Midi at the end of their Mediterranean cruise. With persistent NW winds it is better to sail from Corsica to the nearest port on the mainland French coast and make westing by sailing along the coast. This is also the recommended practice to avoid a strong mistral, when conditions can become very rough in the Gulf of Lions and it is better to wait for an improvement in one of the many harbours along this coast.

Having negotiated the Strait of Messina, from WP M421, in the northern approaches to the strait, an initial course is set for WP422, west of Panaria Island. From there, the route continues to WP423, off the island of Maddalena in the approaches to Bonifacio Strait. This strait, separating Corsica and Sardinia, is dotted with rocks and islets, although the channels are clearly marked and it is not diffi-

cult to traverse it. If a stop in Corsica is not intended and having regained the open sea, from WP424, west of Cape Pertusato, a direct course can be sailed for the French mainland and WP M425. A good landfall is east of the island of Porquerolles at the entrance into the Bay of Hyères. A first stop can be made on Porquerolles itself, where there is a small harbour (43°00'N, 6°12'E). Hyères itself has a large marina and is one of the biggest sailing centres on the Riviera.

An alternative route for those who wish to visit ports at the eastern extremity of the French Riviera is to stay east of Corsica and cross to the mainland from its northern point. In this way the NW winds of summer will be met at a better angle and the worst of a possible mistral may also be avoided.

Because of the difficulties associated with a passage through the Strait of Messina from south to north, an alternative route for boats sailing from Greece to Corsica and Southern France is to pass south of Sicily, thus avoiding the Messina Strait altogether.

M43 Sicily to Balearics

BEST TIME:	May to June, September to October
CHARTS:	BA: 165, 2717 US: 301
PILOTS:	BA: 45 US: 131
CRUISING GUIDES:	<i>East Spain Pilot (Balearics), Spanish Mediterranean Yachtsman's Directory.</i>

ROUTES IN THE MEDITERRANEAN SEA

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M431 Peloro 38°19'N, 15°39'E	M432 Vulcan 38°20'N, 15°00'E			
	M433 Sardinia S 38°30'N, 8°00'E	M434 Menorca E 39°52'N, 4°22'E	Mahon 39°52'N, 4°19'E	550
	M435 Salinas 39°13'N, 3°05'E	M436 Mallorca S 39°26'N, 2°40'E	Palma 39°33'N, 2°38'E	625

Most boats bound for the Balearics from Sicily take their departure from the Messina Strait. From WP M431, north of the strait, the route runs west parallel to the north coast of Sicily, to WP M432, south of Vulcan Island. The course is altered there for WP M433, south of Sardinia. From that point, boats bound for Menorca can set a direct course for WP M434, off Cabo Negro, from where the narrow channel is followed into the port of Mahon.

Boats bound for Palma de Mallorca should set a course from WP M433 for WP M435, off Cape

Salinas, at the SE extremity of Mallorca. From there the course is altered for WP M436, in the Bay of Palma. There are several marinas in the Bay of Palma, while in Palma itself the most convenient, as it is nearest to the town centre, is the marina run by the Real Club Nautico, located in Darsena San Pedro, in the eastern part of the harbour. The club monitors VHF channel 9 permanently. Arriving yachts should go to the reception dock to be assigned a berth.

M44 Sicily to Gibraltar

BEST TIME:	May to June, October			
CHARTS:	BA: 4301 US: 301			
PILOTS:	BA: 45 US: 130, 131			
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot (Costa del Sol).</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M441 Peloro 38°19'N, 15°39'E	M442 Vulcan 38°20'N, 15°00'E			
	M443 Sardinia S 38°30'N, 8°00'E			
	M444 Gata SE 36°25'N, 2°00'W	M445 Europa 36°04'N, 5°20'W	Gibraltar 36°08'N, 5°21'W	1019

Boats that have passed through the Messina Strait should follow a course which runs parallel to the north coast of Sicily. From WP M441, off Cape Peloro, north of Messina Strait, an initial course can be set for WP M442, south of Vulcan Island. The route continues almost due west to WP M443, south of Sardinia. There follows a long offshore leg to WP M444, which has been set well to the south of Cabo de Gata in order to avoid the strong current that sets to the east around that cape. The off-

shore route may be left after Cabo de Gata has been passed to close with the Spanish coast to avoid the stronger current offshore.

The chances of easterly winds on this route are higher in late spring and autumn. The proportion of easterly winds is higher along the North African coast, so if one has access to weather information it may be better to sail a route which stays closer to that shore, but not close enough to be affected by the prevailing east-setting current.

Having made landfall at WP M445, south of the light on Europa Point, boats should make their way to the customs dock, in Marina Bay, to complete formalities. The dock is located south of the runway and is reached by going past North Mole.

Those continuing into the Atlantic without stopping should consult route AN16 (page 44) for details on weather conditions in the Strait of Gibraltar as well as directions for negotiating the strait.

M45 Sicily to Port Said

BEST TIME:	June to August			
CHARTS:	BA: 4302 US: 302			
PILOTS:	BA: 45, 49 US: 130, 131, 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook, Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M451 Messina 38°11'N, 15°37'E	M452 Armi 37°54'N, 15°37'E M453 Damietta 32°00'N, 31°50'E	M454 Said 31°25'N, 32°18'E	Port Said 31°15'N, 32°18'E	940

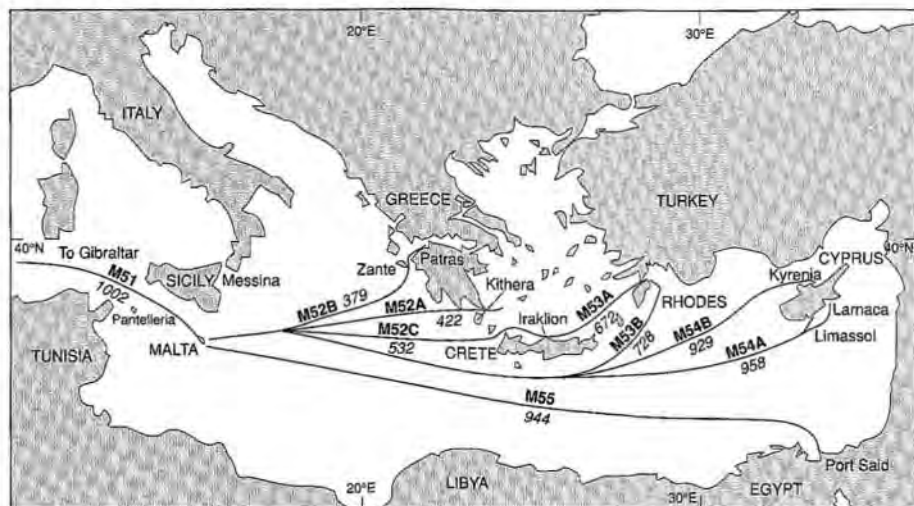
Favourable winds can be expected along this route for most of the year. Because the current normally sets eastward along the Egyptian coast, and the current is augmented by the waters of the Nile, especially when the river is in flood, landfall should be made to the west of Port Said. As the water is shallow throughout the area, the coast should not be approached beyond the 20 fathom line which can be followed as far as Damietta. Boats undertaking this passage are usually bound for the Red Sea and are only calling in Egypt because of the Suez Canal. Those who wish to stop in an Egyptian port before Port Said can do so at Alexandria. However, yachting facilities for visitors are limited in that port and the only ones available belong to the Alexandria Yacht Club, which is one of the most unwelcoming clubs in the world. Those who wish to visit the interior of Egypt would do better to do it from either Port Said or Suez, whose yacht clubs are much more helpful.

Having transited Messina Strait, an initial course is set from WP M451 for WP M452, off Capo dell'Armi. From that point a direct course can be

set from WP M453, off the Damietta mouth in the Nile delta. From there the course is altered for WP M454, in the northern approaches to Port Said and the Suez Canal. Because of the low, featureless Egyptian coast and the shallow depths which extend several miles offshore, the position of Port Said is very difficult to ascertain if landfall is made either too far east or west. The situation is further complicated by the occasionally strong currents in the area, which can be influenced by the state of the Nile waters. The cluster of ships at anchor is usually the best indication of the approaches to Port Said. The approach channel to Port Said extends several miles to the north and is well marked by buoys. It should be entered at its northern extremity and no shortcuts taken because of a number of wrecks lying outside this channel. Small vessels are allowed to proceed into the harbour without a pilot and all formalities can be completed after the vessel has berthed at Fouad Yacht Club. This is situated on the eastern side of the harbour. See page 491 for details on transiting the Suez Canal.

M50 ROUTES FROM MALTA

M51 Malta to Gibraltar	466
M52 Malta to Greece	467
M53 Malta to Rhodes	468
M54 Malta to Cyprus	469
M55 Malta to Port Said	470



M50 Routes from Malta

Malta's position in the centre of the Mediterranean makes it an ideal jumping off point for ports in either the Western or Eastern Mediterranean. Yachting facilities are among the best in the Mediterranean as Malta was an important yachting centre long before the Balearics, Costa del Sol, Greece, and Turkey became such popular cruising destinations. Its convenient location, excellent

repair facilities, and pleasant climate make it a good wintering spot.

The summers are hot, while the winters are mild. Being so close to the African coast, the weather is very much under the influence of that large land-mass. The sirocco can be strong and there is also a daily change in wind direction due to strong land and sea breezes.

M51 Malta to Gibraltar

BEST TIME:	April to May, October
CHARTS:	BA: 4301 US: 301
PILOTS:	BA: 45 US: 130, 131
CRUISING GUIDES:	<i>Yacht Scene, East Spain Pilot (Costa del Sol).</i>

WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M511 Malta NE 35°56'N, 14°32'E	M512 Gozo 36°05'N, 14°27'E			
	M513 Pantelleria 36°55'N, 12°00'E			
	M514 Sentinelle S 38°00'N, 9°40'E			
	M515 Gata SE 36°25'N, 2°00'W	M516 Europa 36°04'N, 5°20'W	Gibraltar 36°08'N, 5°21'W	1002

The autumn is when most passages are made on this route as boats that have spent the summer in the Eastern Mediterranean are rushing west to join the annual exodus to the Caribbean. Depending on the direction of the wind, the route after leaving Malta can pass either north or south of Pantelleria Island. If strong NW winds are encountered SW of Sicily, shelter should be sought in the lee of Pantelleria. With persistent contrary winds it is better to head from Malta across to Tunisia and stay close to that coast as far as Cape Bon. After Cape Bon, the route should stay offshore to avoid east-setting currents on the coast of Africa.

In late summer, early autumn northerly winds can be expected for the first half of this passage, while the second half has a better chance of favourable easterly winds in spring and late autumn. During late summer calms are frequent on this route, especially in the vicinity of Malta.

Unless one has access to reliable weather information, the shortest route should be sailed. From

WP M511, outside Valletta harbour, an initial course is set to pass east of Gozo. From that point (M512), the route turns north and passes north of Pantelleria Island through WP M513 and on to WP M514, south of Sardinia. From there the course becomes westerly and passes well to the south of Cabo de Gata, at the SE extremity of the Iberian peninsula. The Spanish coast should be approached only after the above cape has been passed as there is a strong easterly current in its immediate vicinity.

Having made landfall south of the light on Europa Point, arriving boats should proceed to the customs dock in Marina Bay, south of the runway, to complete formalities. The two older marinas are in that bay, whereas the new Queensway Marina is inside the commercial harbour, which will be passed on the way to customs dock. Boats sailing through the Strait of Gibraltar without stopping, should consult route AN16 (page 44) for details on weather conditions in the Strait of Gibraltar as well as directions for negotiating the strait.

M52 Malta to Greece

BEST TIME:	April to May, October			
CHARTS:	BA: 1439 US: 302			
PILOTS:	BA: 45, 47, 48 US: 130, 131, 132			
CRUISING GUIDES:	<i>Greek Waters Pilot, Saronic.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M52A				
M521 Malta E 35°54.5'N, 14°31.5'E	M522 Tainaron 36°20'N, 22°28'E			
	M523 Kithera 36°26'N, 22°56'E	M524 Malea 36°23'N, 23°12'E		422
Route M52B				
M521 Malta E		M525 Zante S 37°32'N, 20°50'E	Patras 38°15'N, 21°44'E	379

ROUTES IN THE MEDITERRANEAN SEA

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M52C				
M521 Malta E	M526 Gramvousa 35°45'N, 23°35'E			
	M527 Spathi 35°46'N, 23°45'E	M528 Dhia 35°30'N, 25°08'E	Iraklion 35°16'N, 25°09'E	532

Winds on this eastbound route across the Ionian Sea are variable throughout the year with the highest frequency of westerly winds in winter. There is a preponderance of northerly winds in summer, with light winds and calms being more common at the beginning and end of summer. The most direct route to the Aegean (M52A) passes south of the Peloponnese and approaches the Cyclades from the SW. Any of the three channels separating Cape Malea from Crete can be used, although the northernmost Elafonisos Channel, between Kithera Island and Cape Malea, is usually favoured as it is the most sheltered from the prevailing winds. Boats taking this most direct route to the Aegean can sail a direct course from WP M521, outside Valletta Harbour, to WP M522, off Cape Tainaron, on the middle finger of the Peloponnese. The course is then altered for WP M523 to pass clear of the northern extremity of Kithera Island. The Aegean Sea is entered at the last waypoint (M524), off Cape Malea, from where one has the choice of a multitude of destinations.

Because of the constancy of the northerly winds in the Aegean during summer, between the middle of June and the end of August it is more convenient to approach the Cyclades from the NW rather than SW, as described above, and therefore

route M52B is recommended in summer. Taking WP M521, outside Valletta, as the departure point from Malta, a direct course can be sailed to WP M525, south of Zante. The south coast of that island is followed around to pass through the channel separating it from the Peloponnese coast. Those who wish to clear into Greece at the earliest opportunity can do so in the port of Zante. For those who do not wish to stop, from Zante the route continues into the gulfs of Patras and Corinth and reaches the Aegean through the Corinth Canal.

Boats bound for Crete (M52C) should sail a more southern route than M52A and use the Antikithera Channel, south of the small island of the same name and then continue parallel to the north coast of Crete. Landfall can be made at WP M526, off Cape Gramvousa, at the NW extremity of Crete. From there the course can be altered for WP M527 to pass north of Cape Spathi. Boats bound for Iraklion should continue as far as WP M528, west of Dhia Island, in the approaches to the Cretan capital. Boats should proceed into the old Venetian harbour, where there are a number of pontoons for yachts. If there is no free space cruising boats may use the quay immediately to the east of the small boat harbour.

M53 Malta to Rhodes

BEST TIME:	June to August			
CHARTS:	BA: 1439 US: 302			
PILOTS:	BA: 45, 48 US: 130, 131, 132			
CRUISING GUIDES:	<i>Greek Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M53A				
M531 Malta E 35°54.5'N, 14°31.5'E	M532 Crete NW 35°45'N, 23°30'E	M533 Rhodes NW 36°25'N, 28°12'E	Mandraki 36°27'N, 28°14'E	672

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M53B				
M531 Malta E	M534 Crete S 34° 45'N, 24° 07'E M535 Koufonisi 34° 45'N, 26° 10'E M536 Rhodes E 36° 00'N, 28° 10'E	M537 Rhodes NE 36° 26'N, 28° 16'E	Mandraki	728

The island of Rhodes is a useful starting point for cruises in Eastern Turkey and this passage from Malta is usually made at the start of summer when winds on this route are variable. Better winds are experienced in summer when northerly winds prevail for most of the distance. There are two routes that can be sailed from Malta to Rhodes, and each has its own attraction. The route which goes around the north coast of Crete (M53A) will appeal to those who prefer to make some stops en route. From WP M531, outside Valletta harbour, a direct course can be set for WP M532, in the Antikithera Channel, between the island of that name and the NW coast of Crete. From that point the route cuts across the Southern Aegean all the way to WP M533, NW of Mandraki harbour, on the NW coast of Rhodes. The route passes a number of dangers north of Crete, all of which are marked by lights.

Those who wish to reach Rhodes by an offshore route, which stays south of Crete (M53B), may find better conditions on this slightly longer route. Such

a route will avoid the swell encountered in the Southern Aegean during summer, but may lose the winds in the lee of Crete. When sailing in the lee of that island, especially during July and August, when the meltemi is blowing strongly in the Aegean, violent gusts occasionally blow down the steep slopes on the south coast of Crete.

Boats taking route M53B, from WP M531, outside La Valletta, should set an initial course for WP M534, south of Gavdhos Island. From that point the route continues due east, parallel to the south coast of Crete, to WP M535. At that point, the course turns NE and makes for WP M536, off the SE extremity of Rhodes, before a final course alteration is made for WP M537, in the eastern approaches to the port of Mandraki. The port is reached by rounding the northern tip of Rhodes. Mandraki (Limin Rhodou) is always crowded and visiting boats may find it difficult to secure a free berth. Additional docking space was planned for 1994.

M54 Malta to Cyprus

BEST TIME:	June to August			
CHARTS:	BA: 1439 US: 302			
PILOTS:	BA: 45, 49 US: 130, 131, 132			
CRUISING GUIDES:	<i>Turkish Waters and Cyprus Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M54A				
M541 Malta E 35° 54.5'N, 14° 31.5'E	M542 Crete S 34° 45'N, 24° 07'E M543 Zeygari 34° 33'N, 32° 55'E M544 Akrotiri SW 34° 34'N, 33° 03'E M546 Kiti 34° 47'N, 33° 39'E	M545 Akrotiri NW 34° 39'N, 33° 03'E M547 Dades 34° 52'N, 33° 39'E	Limassol 34° 39'N, 33° 03'E Larnaca 34° 55'N, 33° 38'E	923 958

ROUTES IN THE MEDITERRANEAN SEA

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M54B M541 Malta E	M542 Crete S M548 Cyprus NW 35°26'N, 32°55'E	M549 Snake 35°22'N, 33°15'E	Kyrenia 35°20'N, 33°19'E	929

The route to Cyprus passes immediately to the south of Crete and in strong northerly winds it is possible to close with the Cretan coast to benefit from the lee provided by the high island. However, when sailing close to the coast, attention must be paid to the strong gusts which occasionally blow with great force down the steep mountain slopes towards the sea.

Because of the declaration of independence by the Turkish side of Cyprus and the still unresolved dispute over partition, the authorities in the Greek side do not welcome boats that have called first in Northern Cyprus and then visit the south. For this reason, those intending to call in Northern Cyprus should perhaps do so after having visited Southern Cyprus. Northern Cyprus, and especially the attractive port of Kyrenia, is a good starting point for visits to the southern coast of neighbouring Turkey.

Boats bound for Southern Cyprus (route M54A), should set an initial course from WP M541, outside Valletta harbour, for WP M542, south of Gavdhos Island, a small island off the SW point of Crete. The route then continues parallel to Crete and crosses over to WP M543, SW of Cape Zevgari, on the south coast of Cyprus. The course continues to WP M544, off Cape Gata, from where boats bound for Limassol should alter course for WP M545, in the

NW corner of Akrotiri Bay. Yachts either anchor in the commercial harbour or in the fishing harbour nearby. Limassol Marina is a further six miles to the NE (34°42.5'N, 33°09.5'E). The marina uses the call-sign Sheraton Harbour and monitors VHF channels 9 and 16.

Boats bound for Larnaca should continue across Akrotiri Bay to WP M546, off Cape Kiti. A course alteration will be needed for WP M547, off Cape Dades, south of the port of Larnaca. Larnaca Marina monitors VHF channel 16. Occasionally yachts are asked to anchor in the outer harbour while a berth is found for them.

Boats sailing route M54B to Northern Cyprus should follow the same route as far as WP M542, SW of Crete. The route then passes close to Gaidhouronisi, another small island off the Cretan coast and continues to WP M548, off Cape Kormakiti, at the NW extremity of Cyprus. The course is altered there for WP M549, off Snake Island, west of Kyrenia (Girne). The capital of Northern Cyprus has a small harbour and yachting facilities are much below those available in the south. Yachts usually go into Kyrenia's inner harbour, which is very attractive but also very small. As the approaches to this older harbour are not lit, night arrivals should be avoided. The new commercial port is located NE of the town.

M55 Malta to Port Said

BEST TIME:	June to August			
CHARTS:	BA: 4302 US: 302			
PILOTS:	BA: 45, 49 US: 130, 131, 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M551 Malta E 35°54.5'N, 14°31.5'E	M552 Damietta 32°00'N, 31°50'E	M553 Said 31°25'N, 32°18'E	Port Said 31°15'N, 32°18'E	944

Favourable northerly winds prevail along this route during summer. If the passage is made in winter or in strong northerly winds it may be advisable to pass closer to Crete, as there are several harbours along its south coast where shelter can be found in bad weather. However, when sailing close to Crete, attention must be paid to the strong gusts which occasionally blow with great force down the steep mountain slopes towards the sea.

Boats undertaking this passage are usually bound for the Red Sea and are only calling in Egypt because of the Suez Canal. Those who wish to stop in an Egyptian port before Port Said can do so at Alexandria. However, yachting facilities for visitors are limited in that port and the only ones available belong to the Alexandria Yacht Club, which is one of the most unwelcoming clubs in the world. Those who wish to visit the interior of Egypt would do better to do it from either Port Said or Suez, whose yacht clubs are much more helpful.

A direct course can be sailed all the way from Malta and WP M551 to WP M552, north of the Damietta mouth of the Nile river, in the approach-

es to Port Said. At that point the course should be altered for WP M553, north of Port Said and the entrance into the shipping channel leading to the Suez Canal. Because of the low, featureless coast and the shallow depths which extend several miles offshore, the position of Port Said is very difficult to ascertain if landfall has been made either too far east or west. The situation is further complicated by the occasionally strong currents in the area, which are also influenced by the state of the Nile waters. The cluster of ships at anchor is usually the first indication of the approaches to Port Said. The approach channel to Port Said extends far offshore and is well marked by buoys. It should be entered at its northern extremity and no shortcuts taken because of a number of wrecks lying outside this channel. Small vessels are allowed to proceed into the harbour without a pilot and all formalities can be completed after the vessel has berthed at Fouad Yacht Club. This is situated on the eastern side of the harbour. See page 491 for details on transiting the Suez Canal.

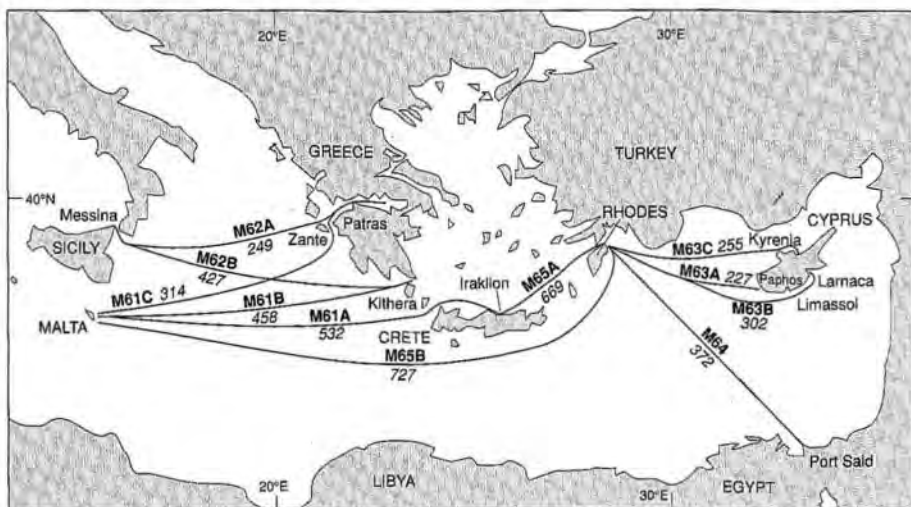
M60 ROUTES FROM GREECE

M61 <i>Greece to Malta</i>	472
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M65 <i>Rhodes to Malta</i>	475

The Greek islands continue to be one of the most popular cruising grounds in the world and very few long distance cruising boats pass through the Mediterranean without visiting them. The main feature of the Aegean, from where all of the above routes originate, are the strong northerly winds of summer. These winds prevail from June until

August and they must be taken into account when drawing up any cruising plans which include that part of the world. The best strategy is to try to arrive in the Northern Aegean by the end of May and then sail slowly south with the help of the meltemi. By the end of summer one is then ready to embark on one of the following routes.

ROUTES IN THE MEDITERRANEAN SEA



M60 Routes from Greece

M61 Greece to Malta

BEST TIME:	June to August
CHARTS:	BA: 1439 US: 302
PILOTS:	BA: 45, 47, 48 US: 130, 131, 132
CRUISING GUIDES:	<i>North Africa, Yachtsman's Handbook to Malta.</i>
WAYPOINTS:	

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M61A M611 Crete NW 35°45'N, 23°30'E		M612 Malta E 35°54.5'N, 14°31.5'E	Valletta 35°54'N, 14°30.5'E	438
Route M61B M613 Malea 36°20'N, 22°28'E	M614 Tainaron 36°23'N, 23°12'E M615 Kithera 36°26'N, 22°56'E	M612 Malta E	Valletta	458
Route M61C M616 Zante N 38°00'N, 20°30'E		M612 Malta E	Valletta	314

Whereas boats on the opposite route have to contend with the strong northerly winds of summer and therefore have a choice of route to reach the Aegean, the same winds make the passage to Malta

much easier. To leave the Aegean one can use any of the channels between the Peloponnese and Crete, although the closest channel to Crete, which goes SE of Antikithera, is probably the sim-

plest. Boats which have included Crete on their itinerary can join the offshore route at the same point (route M61A). A route which passes close to Cape Malea (M61B) benefits from the shelter provided by the Peloponnese by staying longer in the lee of the land before reaching the open sea. Finally, boats which have used the Corinth Canal, or are leaving from one of the Ionian islands, will join route M61C.

From WP M611, in Antikithera Channel, a direct course can be set by boats on route M61A for WP M612, off Valletta harbour. Boats leaving the Aegean closer to the Peloponnese and joining route M61B should take their departure from WP M613,

off Cape Malea. The route passes through an intermediate waypoint before a direct course for Malta can be set from WP M615, north of Kithera Island. On route M61C, a suggested point of departure is WP M616 north of Zante Island, from where a direct course can be set for WP M612, in the approaches to the Maltese capital.

On arrival in Malta, boats should contact Valletta Port Control on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre can be contacted on VHF channel 9 to request docking information.

M62 Greece to Messina Strait

BEST TIME:	May to August			
CHARTS:	BA: 1439 US: 302			
PILOTS:	BA: 45, 48, 49 US: 130, 131, 132			
CRUISING GUIDES:	<i>Italian Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M62A				
M621 Zante N 38°00'N, 20°30'E	M622 Spartivento 37°55'N, 16°06'E			
	M623 Armi 37°54'N, 15°37'E	M624 Messina 38°11'N, 15°37'E		249
Route M62B				
M625 Malea 36°20'N, 22°28'E	M626 Tainaron 36°23'N, 23°12'E			
	M627 Kithera 36°26'N, 22°56'E			
	M628 Sapientza 36°45'N, 21°35'E			
	M623 Armi	M624 Messina		427

There are two main routes reaching the Messina Strait from Greece. Boats leaving from the Central Aegean may prefer to use the Corinth Canal and pass north of the Peloponnese (route M62A), whereas boats which are in the Southern Aegean should join route M62B.

Route M62A takes its departure from Greece at WP M621, in the channel between the islands of Cephalonia and Zante. The route goes right across the Ionian Sea to WP M622, off Cape Spartivento at the toe of Italy. The coast is followed around the

next cape to WP M623 to approach the Messina Strait from the south.

Boats taking the more southern route should start off from WP M625, off Cape Malea. The three fingers of the Peloponnese are followed around to WP M628, off Sapientza Island, from where a direct course can be set for WP M623 off Capo dell'Armi, in the southern approaches to Messina Strait.

The narrow strait separating mainland Italy from Sicily has its own weather peculiarities. Usually the wind tends to blow either in a northerly or

southerly direction along the axis of the strait. Sometimes the wind will be NE on the eastern side, NW on the western side, and very light in the middle. Alternatively it can be S to SE in the southern approaches, changing abruptly to NW in the northern approaches, which creates a heavy sea. Violent gusts come off the high ground, which together

with strong tidal currents and a number of small whirlpools and eddies remind one of why this is the presumed location of the Scylla and Charybdis of the *Odyssey*. A line of bores called *tagli* can occur at the change of tide. It is therefore essential to time one's transit of the strait with a favourable tide.

M63 Rhodes to Cyprus

BEST TIME:	April to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 48, 49 US: 130, 132			
CRUISING GUIDES:	<i>Turkish Waters & Cyprus Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M63A				
M630 Rhodes NE 36°26'N, 28°16'E		M631 Paphos W 34°45'N, 32°22'E	Paphos 34°45'N, 32°25'E	227
Route M63B				
M630 Rhodes NE	M632 Cyprus W 34°40'N, 32°20'E			
	M633 Zevgari 34°33'N, 32°55'E			
	M634 Akrotiri SW 34°34'N, 33°03'E	M635 Akrotiri NW 34°39'N, 33°03'E	Limassol 34°39'N, 33°03'E	267
	M636 Kiti 34°47'N, 33°39'E	M637 Dades 34°52'N, 33°39'E	Larnaca 34°55'N, 33°38'E	302
Route M63C				
M630 Rhodes NE	M638 Strongili 36°05'N, 29°37'E			
	M639 Cyprus NW 35°26'N, 32°55'E	M6310 Sraike 35°22'N, 33°15'E	Kyrenia 35°20'N, 33°19'E	255

The most direct route from Rhodes (M63A) leads to Paphos, a small port on the SW coast of Cyprus, from where it is easy to reach the two major ports in Southern Cyprus, Limassol and Larnaca. Because of the unresolved dispute between the two sides of the island, caused by the declaration of independence by the Turkish side, the alternative route (M63C) should only be used if the intention is to visit Northern Cyprus. The authorities in Greek Cyprus do not approve of boats stopping in Northern Cyprus first, so for the time being it is better to visit the south before the north. An easterly current sets along the coast of Cyprus, and because of this current Cape Andreas, at the NE

extremity of the island, should be approached with caution.

Boats bound for Southern Cyprus (route M63A) and intending to stop first at Paphos, which is an official port of entry, can set a direct course from WP M630, off Mandraki harbour, for WP M631, west of Cape Paphos. The small harbour is reached by passing south of this cape.

Boats bound for Limassol or Larnaca (route M63B) should set a course from WP M630 for WP632, SW of Cyprus. From there the course is altered for WP M633, SW of Cape Zevgari, on the south coast of Cyprus. The course continues to WP M634, off Cape Gata, from where boats bound for

Limassol should alter course for WP M635, in the NW corner of Akrotiri Bay. Yachts either anchor in the commercial harbour off the town of Limassol or in the fishing harbour nearby. Limassol Marina is a further six miles to the NE (34°42.5'N, 33°09.5'E). The marina uses the callsign Sheraton Harbour and monitors VHF channels 9 and 16. Boats bound for Larnaca should continue across Akrotiri Bay to WP M636, off Cape Kiti. A course alteration will be needed for WP M637, off Cape Dades, south of the port of Larnaca. Larnaca Marina monitors VHF channel 16 and will give

berthing instructions. Occasionally yachts are asked to anchor in the outer harbour while a vacant berth is found for them.

Boats sailing route M63C to Northern Cyprus will pass close to the south coast of Turkey. From WP M630, off the NE tip of Rhodes, an initial course should be set for WP M638, off Strongili Island. From there the course can be altered to make landfall at WP M639, off Cape Kormakiti, at the NW extremity of Cyprus. The course is altered there for WP M6310, off Snake Island, west of Kyrenia, the capital of Northern Cyprus.

M64 Rhodes to Port Said

BEST TIME:	April to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 48, 49 US: 130, 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook, Red Sea Pilot.</i>			
WAYPOINTS:				

Departure	Intermediate	Landfall	Destination	Distance (M)
M641 Rhodes NE 36°26'N, 28°16'E	M642 Damietta 32°00'N, 31°50'E	M643 Said 31°25'N, 32°18'E	Port Said 31°15'N, 32°18'E	372

Favourable winds can be expected along this route for most of the year. Because the current normally sets eastward along the Egyptian coast, and the current is augmented by the waters of the Nile, especially when the latter is in flood, landfall should be made to the west of Port Said. As the water is shallow throughout the area, the coast should not be approached beyond the 20 fathom line, which can be followed as far as Damietta.

A direct course can be set from WP M641, off the NE point of Rhodes, for WP M642, off the Damietta mouth of the Nile. From there the course is altered for WP M643, in the northern approaches to Port Said and the Suez Canal. Boats are normally met by a pilot launch and directed to the Fouad Yacht Club on the eastern side of the harbour. See page 491 for details on transiting the Suez Canal.

M65 Rhodes to Malta

BEST TIME:	June to August			
CHARTS:	BA: 1439 US: 302			
PILOTS:	BA: 45, 48 US: 130, 131, 132			
CRUISING GUIDES:	<i>North Africa, Yachtsman's Handbook to Malta.</i>			
WAYPOINTS:				

Departure	Intermediate	Landfall	Destination	Distance (M)
Route M65A M651 Rhodes NW 36°25'N, 28°12'E	M652 Crete NW 35°45'N, 28°30'E	M653 Malta E 35°54.5'N, 14°31.5'E	Valetta 35°54'N, 14°30.5'E	669

ROUTES IN THE MEDITERRANEAN SEA

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M65B				
M654 Rhodes NE 36°26'N, 28°16'E	M655 Rhodes E 36°00'N, 28°10'E			
	M656 Koufonisi 34°45'N, 26°10'E			
	M657 Crete S 34°45'N, 24°07'E	M653 Malta E	Valletta	727

There are two routes that can be sailed to Malta, one passing north of Crete, the other passing south. The northern route should appeal to those who intend to stop on the way as there are several convenient ports on the north coast of Crete. Both routes can be sailed nonstop and the waypoints listed above are for direct passages. The northern route, although slightly shorter, has the disadvantage of stronger winds and relatively high swell during the months when the meltemi is in force in the Aegean. At such times the southern route, although longer, may be preferable.

Boats sailing the northern route (M65A), should take their departure from WP M651, west of Mandraki, from where a direct course can be sailed all the way to WP M652, in the Antikithera Channel, NW of Crete. This route passes a number of dangers, such as the Sofrana Rocks, which are

well marked by lights. From WP M652 a direct course can be sailed to WP M653, east of Valletta.

Boats sailing the southern route (M65B) should take their departure from WP M654, NE of Rhodes, from where an initial course can be set to WP M655, off the east coast of the island. From that point the course can be altered for WP M656, off Koufonisi Island, SE of Crete. The route then runs parallel to the south coast of Crete to WP M657, south of Gavdhos Island. From there a direct route leads to WP M653, off the Maltese capital. Arriving boats should contact Valletta Port Control on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre, which manages all marinas in the Maltese capital, can be contacted on VHF channel 9 to request docking information.

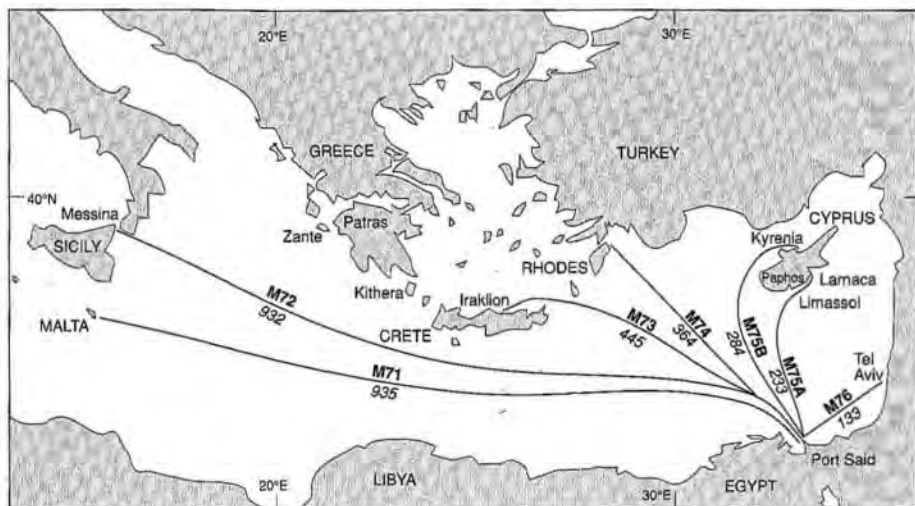
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M75 Port Said to Cyprus	479
M76 Port Said to Israel	480

Having transited the Suez Canal and arrived in Port Said, suddenly the entire Mediterranean lies before one. Routes from Port Said fan out in all directions and, because of its convenient location, most destinations are within easy reach. The exception is for

routes heading in a NW direction, as contrary winds are likely to be encountered, particularly in summer. This is a good reason for timing an arrival in Port Said for late spring if one is headed in that direction.

M70 ROUTES FROM PORT SAID



M70 Routes from Port Said

M71 Port Said to Malta

BEST TIME:	April to May, September to October
CHARTS:	BA: 4302 US: 302
PILOTS:	BA: 45, 49 US: 130, 131, 132
CRUISING GUIDES:	<i>North Africa, Yachtsman's Handbook to Malta.</i>
WAYPOINTS:	

Departure	Intermediate	Landfall	Destination	Distance (M)
M711 Said 31°25'N, 32°18'E	M712 Damietta 32°00'N, 31°50'E	M713 Malta E 35°54.5'N, 14°31.5'E	Valletta 35°54'N, 14°30.5'E	935

On leaving Port Said, an initial course can be set for WP M712, north of the Damietta mouth of the Nile, in order to reach deeper water. From that point a direct course can be set for WP M713, just outside the Maltese capital. Contrary winds are predominant on this route and every shift of wind should therefore be used to advantage. A good supply of fuel should also be loaded in Port Said to be able to motor if necessary in calms or light winds. Preferably the route should pass close to the south coast of Crete, where shelter can be sought in strong

W or NW winds. If shelter is sought in the lee of Crete, or if passing close to the island, attention must be paid to the strong gusts blowing down the steep mountains.

On arrival in Malta, boats should contact Valletta Port Control on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazzaretto Creek. The Yachting Centre can be contacted on VHF channel 9 to request docking information.

M72 Port Said to Messina Strait

BEST TIME:	April to May, September to October			
CHARTS:	BA: 4302 US: 302			
PILOTS:	BA: 45, 49 US: 130, 131, 132			
CRUISING GUIDES:	<i>Italian Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M721 Said 31°25'N, 32°18'E	M722 Damietta 32°00'N, 31°50'E M723 Crete SW 34°40'N, 24°00'E M724 Armi 37°54'N, 15°37'E	M725 Messina 38°11'N, 15°37'E		932

The recommended route to the Messina Strait passes close to Crete, where a waypoint (M723) has been set SW of the island of Gavdhos. If necessary, the route can be altered earlier, so as to pass between Gavdhos and Crete. From WP M723 a direct course can be set to WP M724 off Capo dell'Armi, in the southern approaches to Messina Strait.

The narrow strait separating mainland Italy from Sicily has its own weather peculiarities. Usually the wind tends to blow either in a northerly or southerly direction along the axis of the strait. Sometimes the wind will be NE on the eastern side, NW on the

western side, and very light in the middle. Alternatively it can be S to SE in the southern approaches, changing abruptly to NW in the northern approaches, which creates a heavy sea. Violent gusts come off the high ground, which together with strong tidal currents and a number of small whirlpools and eddies make it easier to see why the Scylla and Charybdis of the *Odyssey* are reputed to have been located in this strait. A line of bores called *tagli* can occur at the change of tide. It is therefore essential to time one's transit of the strait with a favourable tide.

M73 Port Said to Crete

BEST TIME:	April to May, September to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 49 US: 132			
CRUISING GUIDES:	<i>Greek Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M731 Said 31°25'N, 32°18'E	M732 Damietta 32°00'N, 31°50'E M733 Sidheros 35°20'N, 26°21'E M734 Crete NE 35°25'N, 26°10'E	M735 Crete N 35°23'N, 25°20'E	Iraklion 35°16'N, 25°09'E	445

Strong northerly winds make this a difficult passage in summer, but better conditions are normally experienced in either spring or autumn, when most boats sail this route. Boats bound for islands in the Aegean will fare better by taking route M74 and enter the Aegean from the SE. Sailing north from Crete is difficult throughout the summer, so a stop there is better left for the end rather than the start of an Aegean cruise.

From WP M732, north of the Damietta mouth of the Nile, a course can be set for WP M733, east of

Cape Sidheros, the NE point of Crete. There are several attractive ports on the north coast of Crete and these can be reached by rounding Cape Sidheros and closing with the coast. Boats bound for Iraklion should alter course for WP M734. From there the route runs parallel to the north coast of Crete to WP M735, NE of Iraklion. Boats should proceed into the old Venetian harbour, where there are a number of pontoons for yachts. If there is no free space cruising boats may use the quay immediately east of the small boat harbour.

M74 Port Said to Rhodes

BEST TIME:	April to May, September to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 48, 49 US: 130, 132			
CRUISING GUIDES:	<i>Greek Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M741 Said 31°25'N, 32°18'E	M742 Damietta 32°00'N, 31°50'E	M743 Rhodes NE 36°26'N, 28°16'E	Mandraki 36°27'N, 28°14'E	364

Having left Port Said and its busy approaches, from WP M742, north of the Damietta mouth in the Nile delta, a direct course can be set for the NE point of Rhodes and WP M743. The port of Mandraki is reached by rounding the NE extremity of the island. Mandraki (Limin Rhodou), the main port of Rhodes, is always crowded and cruising boats may find it difficult to secure a free berth, especially in

the summer. Additional docking space was planned for 1994.

Because of the preponderance of contrary winds along this route, it may be necessary to motor in calm or light winds. If strong NW winds persist while in Port Said, it is better to make a detour via Cyprus and follow directions as for route M83 (page 483).

M75 Port Said to Cyprus

BEST TIME:	April to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 49 US: 132			
CRUISING GUIDES:	<i>Turkish Waters & Cyprus Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M75A				
M751 Said 31°25'N, 32°18'E	M752 Akrotiri SW 34°34'N, 33°03'E	M753 Akrotiri NW 34°39'N, 33°03'E	Limassol 34°40'N, 33°03'E	198
	M754 Kiti 34°47'N, 33°39'E	M755 Dades 34°52'N, 33°39'E	Larnaca 34°55'N, 33°38'E	233

ROUTES IN THE MEDITERRANEAN SEA

Departure	Intermediate	Landfall	Destination	Distance (M)
Route M75B				
M751 Said	M756 Cyprus SW 34°40'N, 32°20'E		Paphos 34°45'N, 32°25'E	202
	M757 Arnauti 35°07'N, 32°12'E			
	M758 Cyprus NW 35°26'N, 32°55'E	M759 Snake 35°22'N, 33°15'E	Kyrenia 35°20'N, 33°19'E	284

Cyprus is a popular destination for boats that have transited the Suez Canal as it provides a convenient springboard for subsequent visits to neighbouring Middle Eastern countries. Unfortunately the continuing disagreement between the two parts of Cyprus make it difficult to cruise between North and South Cyprus. As the authorities in Northern Cyprus do not seem to mind boats having called first in the South, that part of Cyprus should be visited first. The small port of Paphos, on the SW coast of Cyprus, is a convenient point of departure for boats bound for either Rhodes or Southern Turkey and can also be used for shelter should the weather deteriorate suddenly.

A direct route for any port on the south coast of Cyprus can be set as soon as the long entrance channel of Port Said has been left behind. Boats bound for Limassol should set a course for WP M752, off Cape Gata from where the course can be altered for WP M753, in the NW corner of Akrotiri Bay. The marina at Larnaca, in Larnaca Bay, is a favourite refitting and wintering spot among

long distance voyagers. To reach it an initial course should be set for WP M754, off Cape Kiti, from where the route turns north into Larnaca Bay.

Boats bound for Northern Cyprus (route M75B) will find it much more convenient to round Cyprus from the west as a strong east-setting current makes it more difficult to go around Cape Andreas, the NE extremity of the island. If sailing this route, which leaves Cyprus to starboard, a first recommended waypoint (M756) is off Paphos. From there a small detour can be made into this official port of entry into Cyprus, or one can continue to WP M757, off Cape Arnauti, at the NW extremity of Cyprus. From there the course can be altered for WP M758, off Cape Kormakiti and finally landfall can be made at WP M759, near Snake Island, in the approaches to Kyrenia (Girne), the capital of Northern Cyprus. Cruising boats usually go into the inner harbour, which is very small. As the approaches to this older harbour are not lit night arrivals should be avoided. A new commercial port is located NE of the town.

M76 Port Said to Israel

BEST TIME:	April to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 49 US: 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook.</i>			
WAYPOINTS:				
Departure	Intermediate	Landfall	Destination	Distance (M)
M761 Said 31°25'N, 32°18'E		M762 Aviv S 32°04'N, 34°43'E	Tel Aviv 32°05'N, 34°46'E	133

This is a route taken by those who wish to start their cruising in the very east of the Mediterranean. From Port Said boats bound for Tel Aviv can set a

direct course for WP M762, off Tel Aviv Marina. A big swell makes itself felt in the Eastern Mediterranean throughout the year and the seas

breaking in the shallow waters off the Israel coast occasionally make it difficult to enter some ports. Boats approaching the Israeli coast are supposed to contact the authorities when 40 miles off to give details of vessel and ETA. On approaching the coast yachts are met and occasionally boarded by a patrol boat, which then accompanies the vessel to the port of entry. Tel Aviv Marina monitors VHF channel 16, but because of the difficult entrance night arrivals

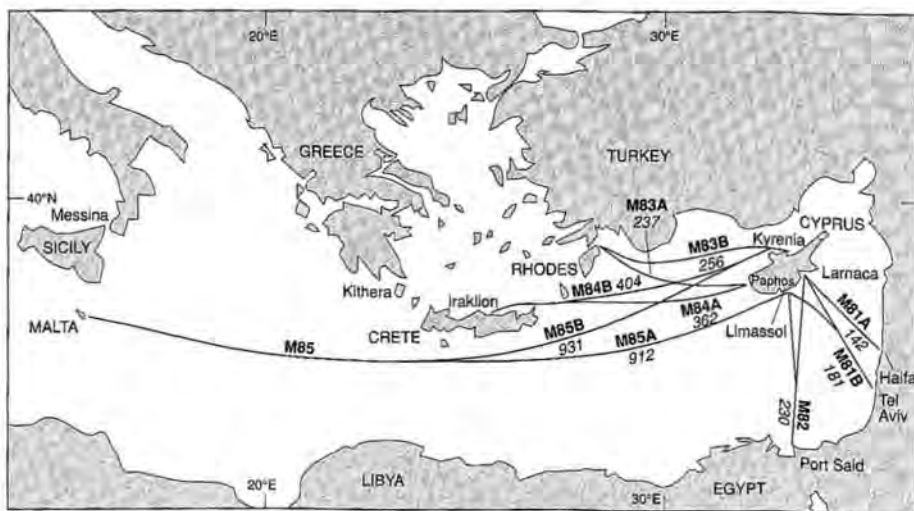
should be avoided. A guide boat is occasionally sent out by the marina to assist those not familiar with the entrance. There is a smaller marina at Jaffa, two miles south of Tel Aviv. Jaffa Marina (32°03.3'N, 34°43'E) also monitors VHF channel 16 and will send out a boat to guide in those unfamiliar with the entrance, which can be particularly difficult in onshore winds.

M80 ROUTES FROM CYPRUS

M81 Cyprus to Israel	482
M82 Cyprus to Port Said	483
M83 Cyprus to Rhodes	483
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M85 Cyprus to Malta	485
M86 Cyprus to Southern Turkey	486

The strategic position of Cyprus in the Eastern Mediterranean makes it an excellent starting point for voyages in any direction. The one major problem is the continuing dispute between the authorities of the divided island, those in Southern Cyprus not welcoming yachts that have called first in Turkish speaking Northern Cyprus. Occasionally

yachts which had stopped in Northern Cyprus first have not been permitted to call at a port in Southern Cyprus. The authorities in Northern Cyprus do not seem so particular about boats that have called in the south first. If this situation persists, these facts should be taken into account when drawing up cruising plans for that part of the world.



M80 Routes from Cyprus

ROUTES IN THE MEDITERRANEAN SEA

The weather is generally pleasant with northerly winds prevailing in summer, especially along the north coast. Variable winds are more common along the south coast, where day breezes are also a phenomenon that contributes to a complicated

weather picture. An easterly current sets along the northern coast, which is particularly noticeable in the vicinity of Cape Andreas, the NE extremity of the island.

M81 Cyprus to Israel

BEST TIME:	April to October			
CHARTS:	BA: 183			
	US: 302			
PILOTS:	BA: 49			
	US: 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M81A				
M811 Larnaca Bay		M813 Akko	Haifa	142
34°54'N, 33°39'E		32°52'N, 34°56'E	32°49'N, 35°00'E	
M812 Akrotiri W		M813 Akko	Haifa	147
34°39'N, 33°04'E				
Route M81B				
M811 Larnaca Bay		M814 Aviv N	Tel Aviv	181
		32°06'N, 34°44'E	32°05'N, 34°46'E	
M812 Akrotiri W		M814 Aviv	Tel Aviv	178

The best point of departure for the short passage to Israel is Larnaca, where up to date information should be obtained from the port authorities concerning sensitive areas to be avoided. There is a choice of destinations on the Israeli coast, with most boats making either for Haifa or for Tel Aviv. The former is a busy commercial port with little attraction for cruising boats. Tel Aviv has a good marina and is also a better place for visits into the interior, such as Jerusalem. Boats approaching the Israeli coast are supposed to contact the authorities when 40 miles off to give details of vessel and ETA. Tel Aviv Marina monitors VHF channel 16. On approaching the coast yachts are met and occasionally boarded by a patrol boat, which then accompanies the vessel to the port of entry.

Whether leaving from Larnaca and WP M811, in Larnaca Bay, or from Limassol and WP M812, in Akrotiri Bay, a direct course can be sailed to WP

M813, NW of Cape Carmel, in the approaches to Haifa, before the course can be altered for the port of Haifa. Spartan Reef, in the NW part of the Bay of Akko (Acre) should be avoided as the swell normally breaks over it. There is a small marina at Akko, north of Haifa, and there are plans to increase its capacity. In Haifa itself, the Carmel Yacht Club occasionally has room for visitors at their facility at the mouth of Kishon River.

Boats sailing to Tel Aviv (route M81B) should use the same departure points and set a course for WP M814, NW of Tel Aviv. Tel Aviv Marina monitors VHF channel 16, but because of the difficult entrance night arrivals should be avoided. A guide boat is occasionally sent out by the marina to assist those not familiar with the entrance. There is also a small marina at Jaffa (32°03.3'N, 34°43'E), about two miles south of Tel Aviv. Entering the marina can be very difficult in strong W winds.

M82 *Cyprus to Port Said*

BEST TIME:	April to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 49 US: 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook, Red Sea Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M821 Larnaca Bay 34°54'N, 33°39'E	M822 Kiti 34°47'N, 33°39'E	M825 Said 31°25'N, 32°18'E	Port Said 31°15'N, 32°18'E	230
M823 Akrotiri W 34°39'N, 33°04'E	M834 Akrotiri SW 34°34'N, 33°03'E	M825 Said	Port Said	224

This route benefits from favourable winds for most of the summer. From most ports on the south coast of Cyprus there is a clear run to a point 10 miles north of the entrance into Port Said, which is the recommended anchorage for commercial shipping waiting to transit the Suez Canal. Because of the low, featureless coast and the shallow depths which extend several miles offshore, the position of Port Said is very difficult to ascertain if landfall is made either too far east or west. The situation is further complicated by the unpredictability of the currents in the area, which are also influenced by the state of the Nile waters. The cluster of ships at anchor is usually the first indication of the approaches to Port Said.

Boats leaving from Larnaca and WP M821 should set an initial course to WP M822, to clear

Cape Kiti. From WP M822 a direct course can be set for WP M825, at the northern entrance into the shipping channel leading into Port Said. Boats leaving from Limassol, in the NW part of Akrotiri Bay, should set an initial course from WP M823 for WP M824, off Cape Gata. From that point, a direct course can be sailed to WP M825, off Port Said.

The approach channel to Port Said extends far offshore and is well marked by buoys. It should be entered at its northern extremity and no shortcuts taken because of a number of wrecks lying outside this channel. Small vessels are allowed to proceed into the harbour without a pilot and all formalities can be completed after the vessel has berthed at the Fouad Yacht Club. This is situated on the eastern side of the harbour.

M83 *Cyprus to Rhodes*

BEST TIME:	April to May, September to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 48, 49 US: 130, 132			
CRUISING GUIDES:	<i>Greek Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M83A M831 Paphos W 34°45'N, 32°22'E		M835 Rhodes NE 36°26'N, 28°16'E	Mandraki 36°27'N, 28°14'E	237

ROUTES IN THE MEDITERRANEAN SEA

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M83B				
M832 Kyrenia N 35°21'N, 33°18'E	M833 Cyprus NW 35°26'N, 32°55'E			
	M834 Strongili 36°05'N, 29°37'E	M835 Rhodes NE	Mandraki	256

It is generally recommended to wait for a spell of E or SE winds before making this passage, which can be hampered by strong northerly winds in summer. If persistently strong W or NW winds occur after the start of this passage, it is preferable to go on the port tack and head for the Turkish coast where either a change in the weather can be awaited or shorter tacks taken along the coast.

A convenient port to wait for favourable conditions for boats sailing route M83A is Paphos, on the SW coast of Cyprus. Boats coming from ports on the south coast of the island can join the offshore route close to that point. From WP M831, outside Paphos harbour, a direct course can be set for WP

M835, off the NE tip of Rhodes.

Boats leaving from Kyrenia, in Northern Cyprus (route M83B), should set an initial course from WP M832 for WP M833, off Cape Kormakiti. The subsequent offshore route passes close to a group of islands off the south coast of Turkey. Those who wish, may clear into Greece at Kastellorizon. Otherwise, from WP M834, off the small island of Strongili, the course is altered for WP M835, in the approaches to Mandraki, the main port on the island of Rhodes. Mandraki (Limin Rhodou) is always crowded and cruising boats may find it difficult to secure a free berth. Additional docking space was planned for 1994.

M84 *Cyprus to Crete*

BEST TIME:	April to May, September to October			
CHARTS:	BA: 1439 US: 802			
PILOTS:	BA: 48, 49 US: 132			
CRUISING GUIDES:	<i>Greek Waters Pilot.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M84A				
M841 Paphos W 34°45'N, 32°22'E	M842 Sidheros 35°20'N, 26°21'E			
	M843 Crete NE 35°25'N, 26°10'E	M844 Crete N 35°23'N, 25°20'E	Iraklion 35°16'N, 25°09'E	362
Route M84B				
M845 Kyrenia N 35°21'N, 33°18'E	M846 Cyprus NW 35°26'N, 32°55'E			
	M847 Kasos 35°18'N, 26°52'E	M843 Crete NE	Iraklion	404

Directions are similar to those for route M83, with the advantage that the prevailing northerly winds of summer will be met at a better angle. However, boats bound for islands in the Aegean would do

better to sail to Rhodes, as described in route M83, and enter the Aegean from the SE. Because of the strong meltemi, sailing north from Crete is difficult throughout the summer, so when making plans for

an Aegean cruise it is better to visit the islands to the north of Crete first and leave Crete for later.

Whether leaving from the south or north of Cyprus, the routes to the north coast of Crete converge in Dhiavlos Kasou, the channel separating Crete from the island of Kasos. Boats leaving from Southern Cyprus (route M84A) will find it convenient to take their departure from Cyprus at Paphos, on the SW coast of the island. From WP M841 a direct course can be set for WP M842, east of Cape Sidheros, at the NE extremity of Crete.

Boats leaving from Northern Cyprus on route

M84B, will sail a course to pass clear of Cape Kormakiti, the NW extremity of Cyprus, before being able to set a course for WP M847, south of Kasos Island. At that point the course can be altered for WP M843, NE of Crete, and joins the route from Southern Cyprus. The route for Iraklion runs parallel to the north coast of Crete to WP M844, NE of the Cretan capital. Boats should proceed into the old Venetian harbour, in the SW corner of the large commercial harbour. If there is no free space at one of the pontoons, cruising boats may use the quay immediately east of the small boat harbour.

M85 Cyprus to Malta

BEST TIME:	June to August			
CHARTS:	BA: 4302			
	US: 302			
PILOTS:	BA: 45, 49			
	US: 130, 131, 132			
CRUISING GUIDES:	<i>North Africa, Yachtsman's Handbook to Malta.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M85A				
M851 Cyprus S 34°33'N, 32°55'E	M852 Crete S 34°45'N, 24°07'E	M853 Malta E 35°54.5'N, 14°31.5'E	Valletta 35°54'N, 14°30.5'E	912
Route M85B				
M854 Kyrenia N 35°21'N, 33°18'E	M855 Cyprus NW 35°26'N, 32°55'E	M853 Malta E	Valletta	931

Reasonable conditions can be expected on this route throughout the summer, with best chances of favourable winds between the middle of June and the middle of August. Calms become more frequent with the approach of autumn.

Boats leaving from one of the ports in Southern Cyprus, such as Larnaca or Limassol, should take their departure from Cyprus at WP M851, SW of Cape Zevgari (route M85A). From this point the route passes south of Crete through WP M852, south of Gavdhos Island. From there a direct course can be set for WP M853, at the entrance into

Marsamxett Harbour.

Boats sailing route M85B from Kyrenia, in Northern Cyprus, should take their leave from the island at WP M855, off Cape Kormakiti, from where a course can be set to pass south of Crete through WP M852 and on to WP M853, in the approaches to the Maltese capital. On arrival in Malta boats should contact Valletta Port Control on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre can be contacted on VHF channel 9 to request docking information.

M86 Cyprus to Southern Turkey

BEST TIME:	April to May, September to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 49 US: 132			
CRUISING GUIDES:	<i>Turkish Waters & Cyprus Pilot, Cruising Guide to the Turquoise Coasts of Turkey.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
Route M86A				
M861 Kyrenia N 35°21'N, 33°18'E	M862 Dildarde 36°20'N, 32°07'E	M863 Alanya S 36°30'N, 32°02'E	Alanya 36°32'N, 32°01'E	96
Route M86B				
M864 Paphos W 34°45'N, 32°22'E	M865 Yeranissou 35°00'N, 32°12'E	M863 Alanya S	Alanya	110

Northern Cyprus, and especially the port of Kyrenia, is a perfect departure point for the south coast of Turkey. Boats coming from Southern Cyprus (route M86B) will fare better by starting from a western port, such as Paphos. Rounding Cyprus from the east is not recommended because of the east-setting current along the north coast and in the vicinity of Cape Andreas.

If leaving from Kyrenia, boats sailing route M86A have a choice of destinations, from Anamur on the east side of the Gulf of Antalya, to Antalya itself, or Finike, further west. If the intention is to cruise the Turkish coast from east to west, it is advisable to sail first to Alanya, which is the nearest port of

entry coming from this direction, and complete entry formalities there. From WP M861, north of Kyrenia, a course is set for WP M862. From there the course can be altered for WP M863, south of Alanya. Because the small port is always crowded with local boats, visiting yachts normally anchor north of the pier, where protection from the prevailing wind is good.

Boats leaving from one of the ports in Southern Cyprus (route M86B), such as Paphos, should set an initial course for WP M865. From that point, the course can be altered for WP M863, south of the port of Alanya.

M90 ROUTES FROM ISRAEL

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M92 Israel to Port Said	488
M93 Israel to Malta	488

Only a few routes set out from the easternmost country in the Mediterranean and most boats that sail them usually make a first stop in Cyprus. As most of the eastern shores of the Mediterranean

lack natural harbours, boat movement is confined to a few ports. Amongst them the busiest is Tel Aviv marina, used both by visiting and local sailors.

M90 ROUTES FROM ISRAEL



M90 Routes from Israel

M91 Israel to Cyprus

BEST TIME: April to June, September to October

Charts: BA: 183

US: 302

PILOTS: BA: 49

US: 132

CRUISING GUIDES: *Turkish Waters & Cyprus Pilot*

WAYPOINTS:

<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M911 Akko 32°52'N, 34°56'E		M913 34°54'N, 33°39'E	Larnaca 34°55'N, 33°38'E	139
M912 Aviv N 32°06'N, 34°44'E		M913	Larnaca	178

Contrary winds are common on this route and therefore a more northerly starting port, such as Haifa, is recommended. Most boats sailing this route usually head for Larnaca before continuing around the south or north of Cyprus. Larnaca Marina (34°55'N, 33°38.5'E) monitors VHF channel 16. Occasionally yachts are asked to anchor in the

outer harbour while a berth is found for them.

Boats leaving from Haifa should make their way past Spartan Reef, north of Cape Carmel, to WP M911, from where a direct route leads to WP M913, in the Bay of Larnaca. Boats leaving from Tel Aviv and WP M912 can set a course for the same WP M913.

M92 Israel to Port Said

BEST TIME:	April to October			
CHARTS:	BA: 183 US: 302			
PILOTS:	BA: 49 US: 132			
CRUISING GUIDES:	<i>Mediterranean Cruising Handbook.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M921 Aviv S 32°04'N, 34°45'E		M922 Said 31°25'N, 32°18'E	Port Said 31°15'N, 32°18'E	142

A contrary current usually makes itself felt along this route and it is therefore preferable not to follow the coast too closely, where the current is strongest. If landfall is made too far east of Port Said, it is often difficult to identify any coastal features and the approaches to Port Said will only be indicated by the large number of ships lying at anchor in the recommended waiting area.

From WP M921, outside Tel Aviv marina, a direct course can be set for WP M922, in the northern

approaches to Port Said. The approach channel into Port Said is taken from this point. The channel should be entered at its northern extremity and no shortcuts taken because of a number of wrecks lying outside this channel. Small vessels are allowed to proceed into the harbour without a pilot and all formalities can be completed after the vessel has berthed at the Fouad Yacht Club. This is situated on the eastern side of the harbour.

M93 Israel to Malta

BEST TIME:	June to September			
CHARTS:	BA: 4302 US: 302			
PILOTS:	BA: 45, 49 US: 131, 132			
CRUISING GUIDES:	<i>North Africa, Yachtsman's Handbook to Malta.</i>			
WAYPOINTS:				
<i>Departure</i>	<i>Intermediate</i>	<i>Landfall</i>	<i>Destination</i>	<i>Distance (M)</i>
M931 Aviv N 32°06'N, 34°44'E	M932 Crete S 34°45'N, 24°07'E	M933 Malta E 35°54.5'N, 14°31.5'E	Valletta 35°54'N, 14°30.5'E	1033

This passage can be undertaken at any time during summer when mostly northerly winds can be expected. From WP M931, outside Tel Aviv marina, a direct course can be set for WP M932 to pass south of Crete and Gavdhos Island. From there a new course can be set for WP M933, east of the

entrance into Marsamxett harbour. On arrival in Malta boats should contact Valletta Port Control on VHF channels 12 or 16 before proceeding to one of the reception docks at Msida Marina or Lazaretto Creek. The Yachting Centre can be contacted on VHF channel 9 to request docking information.

23

PANAMA AND SUEZ CANALS

PANAMA CANAL

The gradual handing over of the Panama Canal to the Panamanian authorities by the United States does not appear to have affected the actual operation of the Canal, and transiting procedures are just as straightforward and easy to accomplish as before. By the year 2000 the Canal will be operated entirely by Panama.

Atlantic side

Cristobal Signal Station should be contacted on VHF channel 12 when 3 miles from the harbour entrance and again when passing between the breakwaters. Traffic lights control the movement of vessels between the breakwaters, but small yachts may enter at any time provided they do so close to the sides. Having entered the large harbour, yachts should proceed in a southerly direction to the recommended anchorage, which is located to the east of Channel buoy no. 4 and to the south of Cristobal Mole. The yacht anchorage, called the Flats, is marked by red and amber buoys. Alternatively, one may ask permission to proceed directly to the Panama Canal Yacht Club, which can be contacted on VHF channel 64. Clearance instructions can be requested on VHF channel 16. Both at Cristobal and Balboa, on the Pacific side, yachts are boarded by a Panamanian boarding officer, who has many functions and will perform customs, quarantine, and immigration duties. Those who prefer to remain at anchor can come to the club by dinghy and use its facilities, provided permission has been obtained beforehand. The use of outboard engines is no longer prohibited between the anchorage and shore facilities.

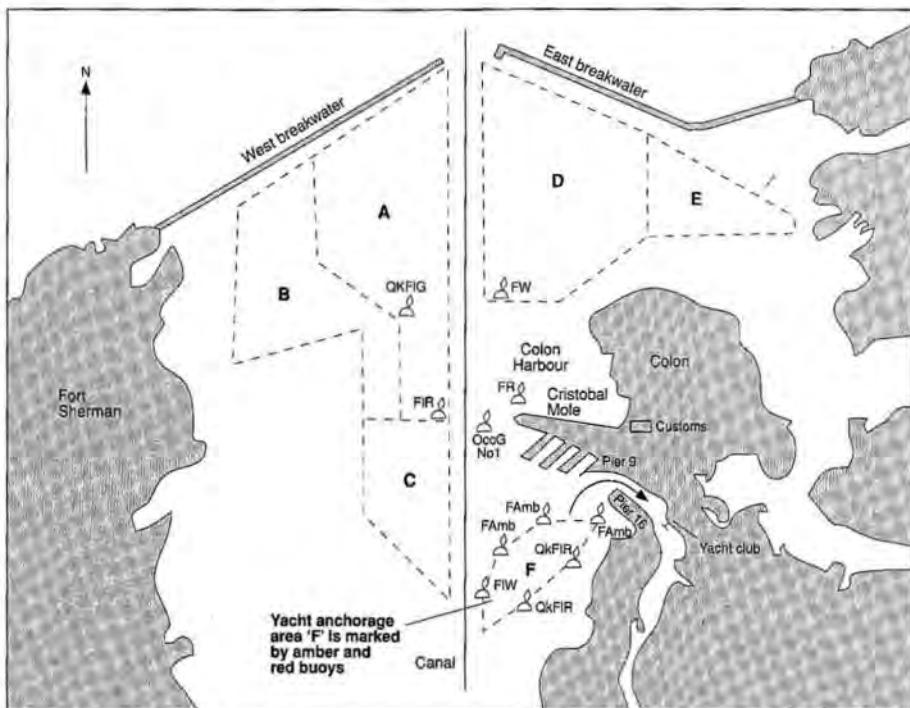
Pacific side

Yachts arriving at the Pacific side of the Canal should contact Flamenco Signal Station on VHF channel 12 and will be directed to either anchor off the Balboa Yacht Club or pick up one of its moorings. The club office is open all day on weekdays and until noon on Saturday and monitors VHF channel 63. Clearance formalities and the transiting of the Canal can be arranged at the club.

When clearance formalities are completed on arrival, the Port Authority will issue a cruising permit, which is needed whether transiting the Canal or not. This also applies to those wishing to visit the San Blas Islands on the Atlantic side for which an additional permit has to be obtained at Porvenir, where all boats are required to stop and check in before proceeding to the islands.

Those wishing to transit the Canal must follow the following steps once clearance formalities have been completed:

- 1 The skipper must call the Admeasurer's office (tel. 46 7293 on the Atlantic side, 52 4570 on the Pacific side) to make arrangements for a Panama Canal Tonnage Certificate to be issued. In Cristobal, the Admeasurer's office is on the first floor of the Administration Building no.1105. In Balboa, the office is on the first floor of Building 729, Marine Bureau Building. The offices are open 0700-1600 Monday to Saturday. Payment must be made in cash in US dollars. Neither travellers cheques nor any other currency than dollars are accepted.
- 2 After admeasurement, the captain has to report to the Marine Traffic Control Office (Building 1105, second floor, Cristobal or Building 910, La Bola, on the Pacific side). An officer will explain



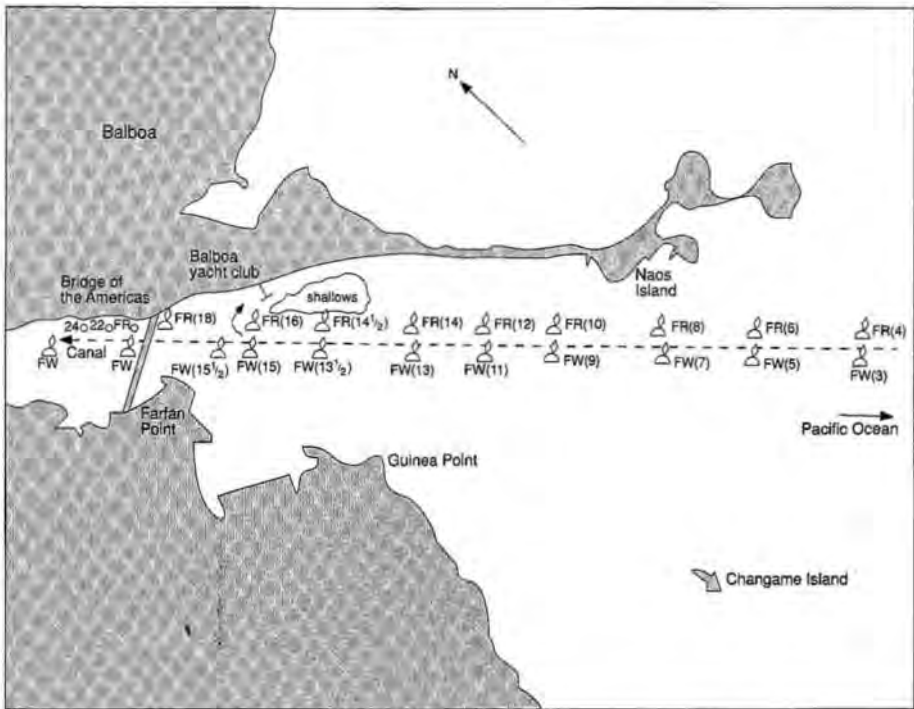
Panama Canal - Atlantic Ocean entrance

the requirements needed for the transit, such as four mooring lines not less than 100 ft long and not less than 22 mm (7/8 inch) in diameter, four linehandlers in addition to the helmsman and adequate fenders. The vessel is required to be able to maintain a speed of 5 knots under her own power. All lines and cleats should be inspected to ensure that they are in good order as they will be put under heavy strain during the transit. Those in need of additional linehandlers should contact Panama Transit Services on tel. 28 8056.

- 3 The captain is then given a provisional pilot time for his scheduled transit, prior to which he will be required to call Marine Traffic Control (tel. 52 4202 or VHF channel 12) to confirm the time. Yacht transits take place every day of the week and depend on shipping movement, but on average yachts have to wait three days before transiting. Yachts normally make the transit in two

days, spending the night anchored off Gamboa. The pilot arrives early in the morning and leaves for the night, returning the following morning to complete the transit. Yachts must maintain their schedule regardless of weather conditions. Yachts that cannot maintain a speed of 5 knots will need a change of pilot at Gamboa, halfway through the Canal. However, if one has indicated that a speed of 5 knots could be maintained and this was not achieved, the yacht will be delayed at Gamboa until a second pilot becomes available the following day. All additional expenses for this will be paid by the owner. Yachts that cannot maintain more than 4 knots have to be towed through the Canal by a Commission launch, for which a fee is charged.

There are three types of lockage for yachts under 125 ft (38 m) LOA when transiting the Canal: centre chamber, sidewall, or alongside a tug. Traffic Control decides on the type of lockage for each



Panama Canal – Pacific Ocean entrance

yacht. Because of the roughness of the walls and the turbulence created during the filling of the chambers, yachts usually transit centre chamber or alongside a Commission tug, but each yacht must be capable of centre lockage.

Centre chamber lockage: The vessel is held in the centre of the chamber by two bow and two stern lines. Yachts are sometimes rafted together in which case only those on the outside will handle two mooring lines each.

Sidewall lockage: Only two 100 ft lines are required but plenty of fenders as the walls are rough concrete. Care should be taken of the rigging and spreaders which may hit the walls as the water is lowered in the chamber. This type of lockage is not recommended for yachts of less than 70 ft LOA.

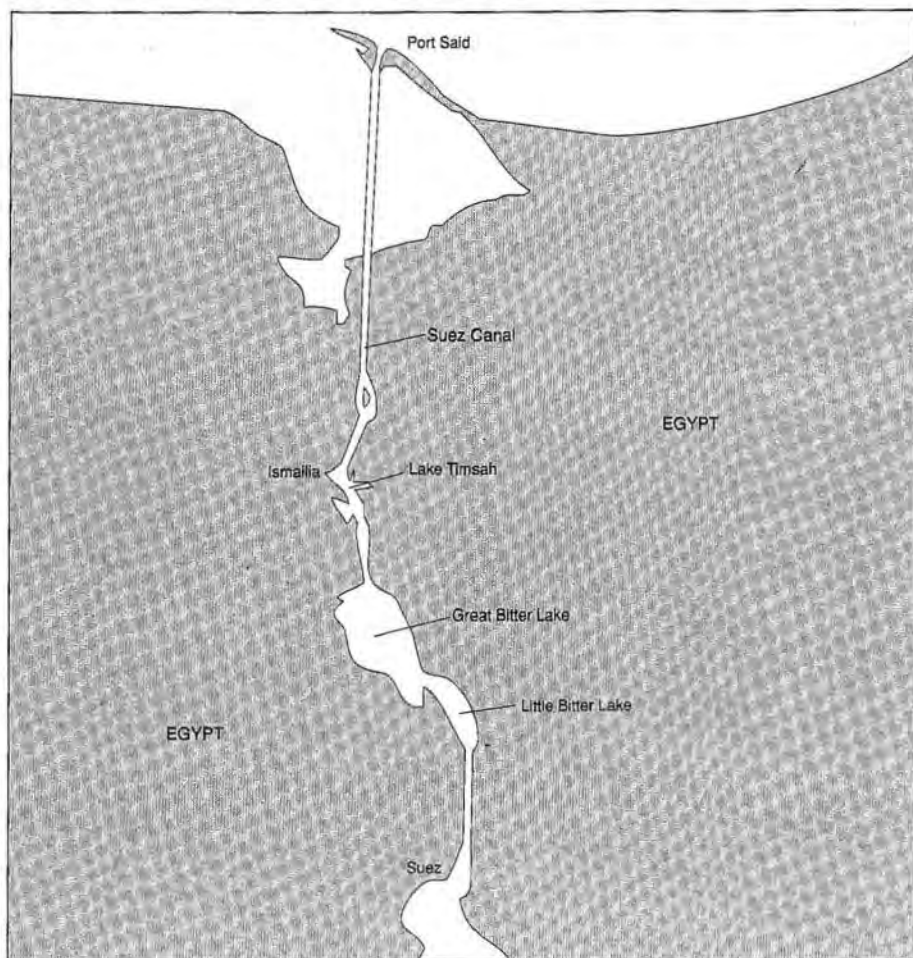
Alongside a tug: Two 50 ft lines are required and also two springs, as well as adequate fenders. This is the best type of lockage for small yachts and, it is the preferred lockage used by the Canal pilots.

SUEZ CANAL

The 87.5 mile long Suez Canal links the Mediterranean and the Red Sea by way of several lakes and without any locks. Its opening in 1869 had a tremendous impact on international shipping as it halved the distance between Europe and the Far East. In its long history, the Canal has been closed twice as a result of war, in 1956 for a year and in 1967 for seven years. It is now used regularly by about 100 ships per day and its recent upgrading has made it possible for the Canal to be transited by vessels of up to 200 000 tons.

Vessels under 300 tons are allowed to use the canal free of charge, although there are some additional fees that have to be paid by all users, including the smallest yacht. The captains of small vessels intending to transit the canal are allowed by the Suez Canal Authority to complete the necessary formalities on their own, but as they are very com

PANAMA AND SUEZ CANALS

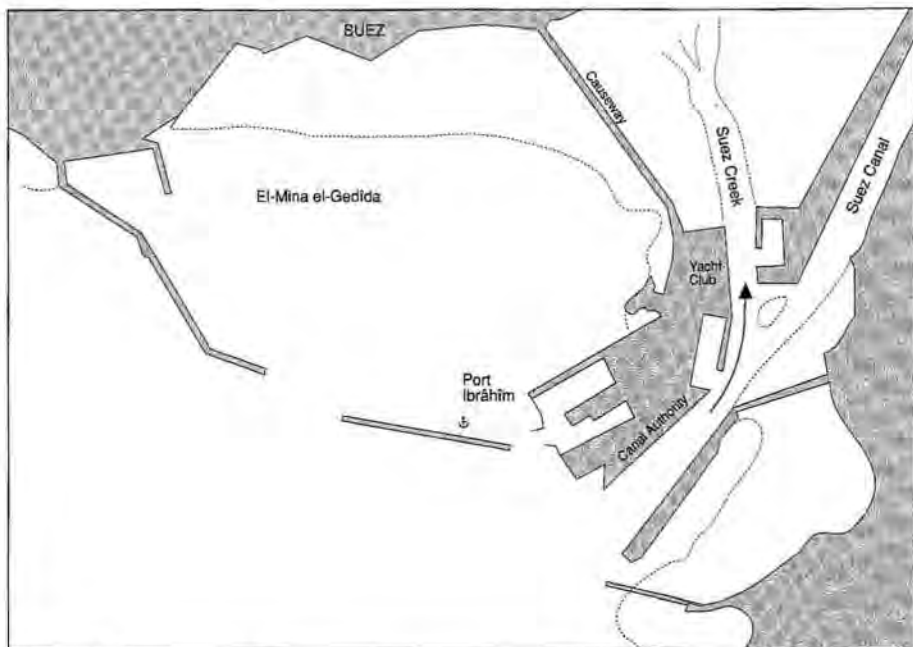


Suez Canal

plicated, the use of a shipping agent is strongly recommended. Both in Port Said and Suez there are several firms which specialise in handling small boats and their representatives are usually on station in the approaches to the Canal offering their services, sometimes rather forcefully. If the services of a local agent are employed, all additional costs must be specified by the agent and fees agreed in advance. Agent fees and transit costs all have to be

paid in US dollars, therefore it is advisable to carry some funds in notes, including smaller denominations.

Those who do not wish to be delayed after the transit of the Canal is completed, can request outward clearance from either Port Said or Suez while completing formalities for their transit. They can proceed on their way as soon as they have dropped the pilot at the end of the Canal. Those



Suez Canal – the approaches to Suez

wishing to visit inland areas of Egypt either before or after passing through the Canal need a tourist visa, which can be obtained on arrival. During a trip inland, the boat can be left in the care of either yacht club.

Because of the length of the Canal, very few yachts are able to transit the Canal in one day. Small vessels are not permitted to use the Canal at night and for this reason it is necessary to anchor overnight at Ismailia, in the NW corner of Lake Timsah. The crew are normally allowed to use the local yacht club but must not leave the premises. Usually the same pilot will rejoin the yacht at dawn to complete the transit.

Yachts must be capable of maintaining a speed of 5 knots under power. The speed limit in the Canal is 9 knots. The use of sails is not permitted in the Canal, although with the pilot's permission the mainsail may be run up while crossing the Bitter Lakes if the weather warrants this. If the vessel is delayed for any reason and Ismailia cannot be reached before nightfall, the captain may be

required to anchor for the night in a place where the yacht does not impede the passage of larger vessels. The transit procedure is as follows:

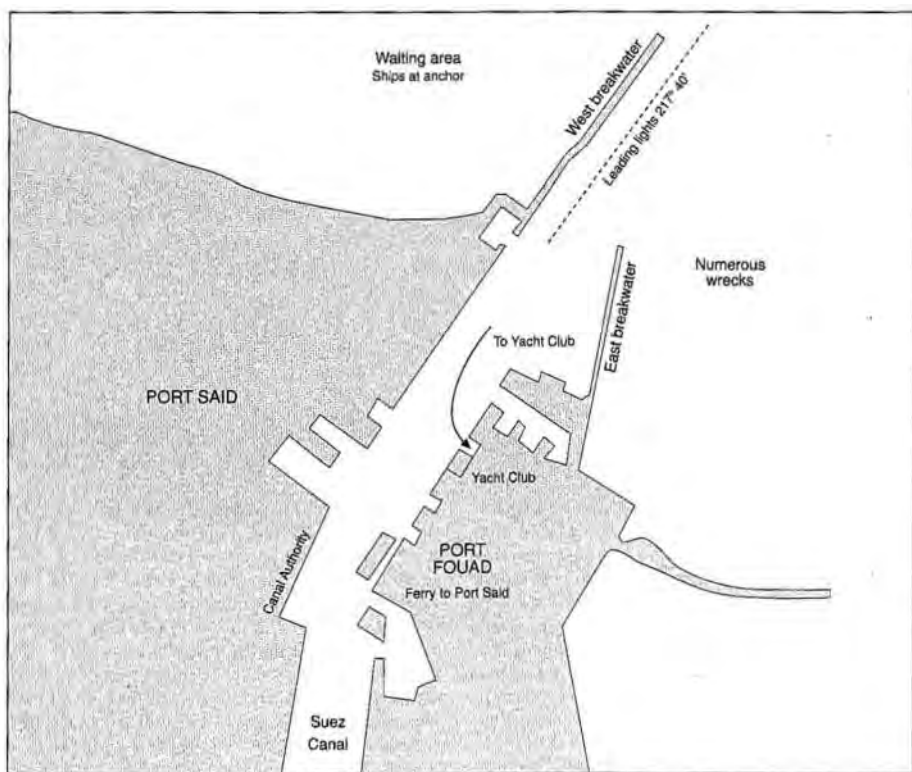
Southbound

Small vessels arriving at the Mediterranean entrance to the Canal in Port Said must berth at the Fouad Yacht Club, which is situated on the east side of the harbour. Because of the high density of traffic and intricate approaches, Port Said harbour should not be entered at night. On the morning of the transit, a pilot will board the vessel at a place agreed with the agent. The pilot will take the vessel as far as Ismailia, where the night will be spent at anchor in Lake Timsah. The pilot will be collected by launch and either the same pilot or a replacement will join the yacht the following morning to complete the transit. On arrival in Suez, yachts usually moor at the Suez Yacht Club, situated in a creek on the west bank, very close to the southern end of the canal. The pilot will give instructions how to reach the club and he can be dropped there.

Northbound

Vessels approaching the Canal from the Red Sea must anchor in Port Ibrahim, in the NE corner of Suez Bay, close to the north of the Canal entrance. After formalities have been completed, the boat can move to the Suez Yacht Club, or remain at anchor. Whether completing formalities alone or with the help of an agent, a pilot appointed by the Canal Authority will join the yacht on the morning of the agreed day, either at the yacht club or more likely at the customs wharf close to the entrance to the Canal, on the west side of the harbour. Yachts normally transit just after the morning convoy has left Suez, between 0900 and 1100. Usually on the first

day of the transit yachts only manage to go as far as Ismailia, where the night is spent at anchor in Lake Timsah. The pilot will be collected by a launch and either the same pilot or a replacement pilot will join the yacht the following morning to complete the transit. Occasionally, if the morning convoy is late leaving Port Said, the yacht is delayed leaving Ismailia and may have to spend a second night in the Canal. On arrival in Port Said, the pilot will be picked up by a launch and the yacht is free to proceed on her way. Those who have obtained onward clearance can put to sea immediately. Those who wish to stay should proceed to the Fouad Yacht Club, on the east side of the harbour.



Suez Canal - approaches to Port Said

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