

11.433 Marine Fisheries Initiative. (See ADDRESSES for document availability.)

A notice of availability of financial assistance for the FY 1996 MARFIN program is expected to be published in the **Federal Register** after public comments have been received on the proposed areas of emphasis in this notice.

II. Proposed Areas of Emphasis for the FY 1996 MARFIN Program

Research needs identified in fishery management plans (FMPs) and amendments prepared by the Gulf and South Atlantic Fishery Management Councils (Councils) and the Gulf and Atlantic States Marine Fisheries Commissions (Commissions) are included. For availability of these and other documents referenced here, see ADDRESSES. Proposed areas of special emphasis for FY 1996 include:

A. Bycatch.

The bycatch of biological organisms by various fishing gears can have wide-reaching impacts from a fisheries management and an ecological standpoint, with the following major concerns:

1. *Shrimp trawl bycatch.* Studies are needed to contribute to the regional shrimp trawler bycatch program (including the rock shrimp fishery) being conducted by NMFS in cooperation with state fisheries management agencies, commercial and recreational fishing organizations and interests, environmental organizations, universities, Councils, and Commissions. Specific guidance and research requirements are contained in the Regional Bycatch Plan available from NMFS. In particular, the studies should address:

a. Data collection and analyses to expand and update current bycatch estimates temporally and spatially from offshore, nearshore, and inshore waters, emphasizing areas of greatest impact by shrimping. Sampling effort should include estimates of numbers, weight and random samples of size (age) structure of associated bycatch complex with emphasis on those overfished species under the jurisdiction of the Councils.

b. Assessment of the status and condition of fish stocks significantly impacted by shrimp trawler bycatch, with emphasis given to overfished species under the jurisdiction of the Councils. Other sources of fishing and nonfishing mortality should be considered and quantified as well.

c. Identification, development, and evaluation of gear, non-gear and tactical fishing options to reduce bycatch.

d. Improved methods for communicating with and improving technology and information transfer to the shrimp industry.

e. Social and economic impacts of management options to reduce shrimp fishery bycatch.

2. *Pelagic longline fisheries.* A number of pelagic longline fisheries exist in the Gulf and South Atlantic, targeting highly migratory species such as tunas, sharks, billfish and swordfish. Priority areas include:

a. Development and evaluation of gear and fishing tactics to minimize bycatch of undersized and unwanted species, including sea turtles, marine mammals and overfished finfish species/stocks.

b. Assessment of the impact of longline bycatch on related fisheries, including biological, social, and economic factors and effects.

3. *Reef fish fisheries.* The reef fish complex is exploited by a variety of fishing gear and tactics. The following research on bycatch of reef fish species is needed:

a. Development and evaluation of gear and fishing tactics to minimize the bycatch of undersized and unwanted species, including sea turtles and marine mammals.

b. Characterization and assessment of the impact of longline, bandit gear and trap bycatch of undersized target species, including release mortality.

4. *Finfish trawl fisheries.* Studies are needed on quantification and qualification of the bycatch in finfish trawl fisheries, such as the flounder and fly-net fisheries in the South Atlantic.

5. *Gillnet fisheries.* Studies are needed on quantification and qualification of the bycatch in coastal and shelf gillnet fisheries for sciaenids, scombrids, bluefish, dogfish, clupeids and sharks of the South Atlantic area (particularly interaction with sea turtles and marine mammals), and sea turtle bycatch for the coastal gillnet fishery off Louisiana.

B. Reef Fish.

Some species within the reef fish complex are showing signs of being overfished, either through directed efforts or because they are bycatch of other fisheries. The ecology of reef fish makes them vulnerable to overfishing, because they tend to concentrate over specific types of habitat with patchy distribution. This behavior pattern can make traditional fishery statistics misleading. Priority research areas include:

1. Collection of basic biological data for species in commercially and recreationally important fisheries.

a. Age and growth of reef fish.

(1) Description of age and growth patterns, especially for red, vermillion, gray, and cubera snappers; gray triggerfish; gag; black grouper; spottail pinfish; hogfish; red porgy and other less dominant forms in the management units for which data are lacking.

(2) Contributions to the development of annual age-length keys and description of age structures for exploited populations for all species in the complex addressed in the Reef Fish Management Plans for the Gulf and South Atlantic, prioritized by importance in the total catch.

(3) Design of sampling systems to provide a production-style aging program for the reef fish fishery. Effective dockside sampling programs are needed over a wide geographic range, especially for groupers, to collect information on reproductive state, size, age, and sex. These research needs are discussed in the report of the workshop on grouper reproduction held in Panama City, FL, in November 1993.

b. Reproduction studies of reef fish.

(1) Maturity schedules, fecundity and sex ratios of commercially and recreationally important reef fish, especially gray triggerfish, gag, and red porgy in the Gulf and South Atlantic.

(2) Studies of all species to characterize the actual reproductive contribution of females, by age.

(3) Identification and characterization of spawning aggregations by species, area, size group and season. Information on the effects of fishing on changes of sex ratios for gag, red grouper, and scamp, and disruption of aggregations is especially needed.

(4) Investigations of the reproductive biology of gag, red grouper and other grouper species as addressed in the recommendations of the workshop on grouper reproduction held in Panama City, FL, in November 1993.

c. Recruitment of reef fish.

(1) Source of recruitment in Gulf and South Atlantic waters, especially for snappers, groupers and amberjacks.

(2) Annual estimation of the absolute or relative recruitment of juvenile gag, gray snapper and lane snapper to estuarine habitats off the west coast of Florida and to similar estuarine nursery habitats along the South Atlantic Bight; development of an index of juvenile gag recruitment for the South Atlantic based on historical databases and/or field studies.

(3) Research to evaluate the contribution of live-bottom habitat and the habitat areas of particular concern (*Oculina* banks) off Fort Pierce, FL, to reef fish recruitment.

d. Stock structure of reef fish.