1000 years (Schaffer, 1981, 1987; Belovsky, 1987; Soule, 1987; Mace and Lande, 1991; Mace et al., 1993; Thompson, 1991). Thompson (1991) notes that although there are no clear theoretical grounds for a single choice of persistence probability and time frame reference, the relatively frequent use of a 95 percent probability of persistence over 100 years makes this a reasonable standard for an MVP, i.e., an unendangered population. Considering the converse, an endangered population may be defined as one with a greater than 5 percent chance of extinction over the next 100 years. Evaluating the western Steller sea lion population PVA results (at Merrick and York, 1994) in light of this "standard" would lead to a determination that the western population of Steller sea lions is endangered.

Various "rules of thumb" also have been proposed for the minimum population size needed to "ensure" population persistence over time; however, most authors caution against using such "magic numbers" offhandedly. For example, the 1994 estimate of adult/juvenile Steller sea lions within the western population segment of 33,600 (NMFS, 1995) is well above most of the MVP "rules of thumb" commonly cited (Soule, 1987; Belovsky, 1987; Thomas, 1990). A "rule of thumb" approach is inadequate, however, for evaluating the status of Steller sea lions under the ESA. A "rule of thumb" assessment may be useful in assessing long-term viability of stable populations, but the severe, continuous decline in the western Steller sea lion population trend would be overlooked by such an approach. As noted by the Recovery Team in their criteria, the rate of population decline, as well as the magnitude and spatial extent of the decline, are critical factors in determining endangerment for this population.

Mace and Lande (1991) and Mace et al. (1993) outline criteria for classifying species considered by the International Union for the Conservation of Nature (IUCN), which incorporate various types of population data and analyses, e.g., population size, geographic range, population decline rate, probability of persistence within a given time frame from PVA. Consideration of all available data on a population allows a more robust estimate of population status than "rule of thumb" or PVA approaches alone. It should be emphasized that in both IUCN proposals probabilistic criteria are considered in conjunction with other data, thus, the most conservative classification derived

by considering all available data/ analyses would be chosen.

Conclusions concerning the western population: An analysis of the conservation status of the western population segment of the Steller sea lion in relationship to the standards for threatened and endangered status indicates that this population segment would satisfy the third criterion of the proposed population policy. In addition, the available data and information concerning the status of this stock indicates that the western population should be proposed for endangered status under the ESA.

The western population is proposed to consist of Steller sea lions from breeding colonies located west of 144 °W. long.

Status of the Eastern Steller Sea Lion Population Segment

Population monitoring data: The 1990 ESA listing of Steller sea lions resulted primarily from the declines observed in the western population area; in the eastern population, a decline has been noted only in the California part of the range. Since the 1990 listing, trend counts of the eastern population segment show about a 17 percent increase overall in adult/juvenile numbers. Similar to the western population, regional differences in trends within the eastern population are evident.

California experienced a large decline in Steller sea lion numbers prior to 1980; NMFS (1995) estimated a greater than 50 percent decline between about 1950 and 1980. Some of the available data indicate that a northward shift in the Steller sea lion range may be occurring, which may exacerbate the decline at southern rookeries. Steller sea lion counts in California have been relatively stable since 1980 (1980 count was 982) although counts declined 19 percent from 1990-94 (from 1,123 animals to 915) (NMFS, 1995). The reasons for the historical decline in Steller sea lion total abundance and the current decline at southern locations in California is not known. Causal factors under investigation include changes in prey base, possible effects of anthropogenic contaminants and disease, disturbance, and competition with other pinniped populations that are increasing in abundance in California, e.g., California sea lions, elephant seals, northern fur seals.

Steller sea lion adult/juvenile counts at Oregon trend sites show a relatively large increase from 1990–94 (from 2,005 to 2,696) but this may be, at least partially, due to improved counting techniques (NMFS, 1995). Steller sea lion adult/juvenile counts in Southeast Alaska increased 15 percent from 1990 to 1994 (from 7,629 to 9,005), and pup counts increased by about 10 percent (from a mean of 2,568 in 1989–90 to a mean of 3,701 in 1993–94).

The British Columbia portion of the eastern population has also apparently been increasing slowly since the 1970s. Reports from aerial surveys conducted by the Canadian Department of Fisheries and Oceans indicate that adult/juvenile counts at rookeries and haulouts in British Columbia increased about 10 percent between 1992 and 1994 (from 7,376 to 8,091) (Olesiuk, pers. comm.).

Criteria and considerations for threatened status and conclusions concerning the eastern population: The overall trend of the eastern population segment of Steller sea lions since 1980 has been stable to increasing although significant declines in the number of Steller sea lions occurring within California prior to 1980 have been documented. Population modeling of the number of sea lions at the rookeries to assess the viability of the eastern population segment has not been specifically conducted by NMFS. Since this population's trend has been stable to increasing, modelling, such as that conducted for the western population, would be expected to predict persistence of this population segment for the foreseeable future (NMFS, 1995).

The estimated size of the eastern population of Steller sea lions within U.S. boundaries in 1994 was 18,600 animals. About 10,000 more animals of this population are estimated to occur within British Columbia. The British Columbia estimate was derived by adjusting Olesiuk's 1994 adult/juvenile count to account for animals at sea, using the methods of Loughlin et al. (1992).

Comparison of this population size with the typical range of most "rules of thumb" for minimum viable population size (from 1000 to 10,000 individuals (Thompson, 1991)) provides an additional indication that this population is not vulnerable to extinction in the foreseeable future. Similarly, this population segment, when considered alone, would not meet any of the draft IUCN vulnerability criteria discussed in Mace and Lande (1991) and Mace et al. (1993).

Evaluating the population status of the eastern population segment without a consideration of its place in the overall species population, however, may be inappropriate. Prior to the decline, the proportion of the U.S. population of Steller sea lions that resided within the eastern population