

## 3.7 MARINE MAMMALS

### 3.7.1 Introduction

#### 3.7.1.1 Definition of Resource

Marine mammals addressed within this EIS/OEIS include members of three distinct taxa: *Cetacea*, which includes whales, dolphins, and porpoises; *Pinnipedia*, which includes seals and sea lions (the walrus is also included in this sub-order but is not relevant to this EIS/OEIS); and *Carnivora*, which includes the sea otter, a member of the *Mustelidae* family. Cetaceans—the whales, dolphins, and porpoises—spend their lives entirely at sea. Pinnipeds—the seals and sea lions—hunt and feed exclusively in the ocean but come ashore to rest, mate, and bear young. Although most mustelids (members of a family which includes otters, weasels, skunks, and wolverines) are terrestrial, sea otters regularly swim and feed in the ocean.

Section 3.7 is a summary of marine mammal use of the Sea Range. A more detailed account appears in an accompanying “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e), which is incorporated into the EIS/OEIS by reference in accordance with CEQ regulations (refer to [Section 4.0](#)). The Technical Report is organized in the same sequence as this summary, but provides greater detail. It includes extensive mapping and analysis of results from aerial and ship surveys, many more references to the relevant technical literature, and explanations of the basis for the numerical estimates quoted in this section of the EIS/OEIS.

#### 3.7.1.2 Regional Setting

##### A - Cetaceans

At least 34 species of cetaceans have been identified from sightings or strandings in the SCB (Bonnell and Dailey 1993; [Table 3.7-1](#)). These include 26 species of toothed whales (odontocetes) and eight species of baleen whales (mysticetes). At least nine species generally can be found in the study area in moderate or high numbers either year-round or during annual migrations into or through the area. These include the Dall’s porpoise (*Phocoenoides dalli*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), Risso’s dolphin (*Grampus griseus*), bottlenose dolphin (*Tursiops truncatus*), short-beaked and long-beaked common dolphins (*Delphinus delphis* and *D. capensis*), northern right whale dolphin (*Lissodelphis borealis*), Cuvier’s beaked whale (*Ziphius cavirostris*), and gray whale (*Eschrichtius robustus*). Other species are represented by small numbers, moderate numbers during part of the year, occasional sightings, or strandings.

Several species of cetaceans occurring on the Sea Range are listed as endangered or threatened. Most endangered mysticetes that occur in California waters were once commercially hunted to the point that their populations were severely depleted. The northern right (*Eubalaena glacialis*), humpback (*Megaptera novaeangliae*), blue, fin, and sei whales (*Balaenoptera musculus*, *B. physalus*, and *B. borealis*, respectively) are currently federally listed as endangered species and protected by the Endangered Species Act (ESA) of 1973 (16 U.S.C. § 1531) (Braham 1991). Gray whales have recently been removed from the endangered list due to an increase in population numbers (National Marine Fisheries Service [NMFS] 1993).

All marine mammals are protected by the Marine Mammal Protection Act ([MMPA] 1972, amended 1994 - 16 U.S.C. § 1431 et seq.). Several of the “endangered” species have also been listed as “strategic stocks” under the MMPA. The specific definition of a “strategic stock” is complex, but in general it is a



Table 3.7-1. Summary of Information on Cetaceans that Might be Encountered in the Point Mugu Sea Range

Species	Status	California Stock Size (CV)*	Abundance in Sea Range	Population Trend <sup>1</sup>	Seasonality	Habitat Preference
Harbor porpoise ( <i>Phocoena phocoena</i> )	**None, recommended as strategic	13,370 [4,120 (0.22) <sup>2</sup> + 9,250 (0.23) <sup>2</sup> ]	Rare	Evidence of decline 1986-1995; not statistically significant	Winter? Mainly inshore of Sea Range at other seasons	Coastal, temperate waters, mainly north of Point Conception
Dall's porpoise ( <i>Phocoenoides dalli</i> )	**	47,661 (0.40) <sup>3</sup>	Common	N.A.	Year-round resident, peak numbers in autumn/winter. Low numbers in summer	Continental shelf, slope, and offshore; water <17°C
Pacific white-sided dolphin ( <i>Lagenorhynchus obliquidens</i> )	**	121,693 (0.47) <sup>4</sup>	Common	N.A.	Year-round resident with N-S movements to colder-water areas in late spring and summer	Continental shelf, slope and offshore; prefers deep waters
Risso's dolphin ( <i>Grampus griseus</i> )	**	32,376 (0.46) <sup>4</sup>	Common	N.A. Increased sightings during last 20 years may reflect increased survey effort	Year-round resident, peak in winter. Low numbers in summer	Mostly offshore, recently over continental shelf
Bottlenose dolphin ( <i>Tursiops truncatus</i> ) coastal	**	140 (CV 0.05) <sup>1</sup>	Rare	N.A.	Year-round resident of coastal areas east of SR	Within 0.5 NM of shore
Bottlenose dolphin ( <i>Tursiops truncatus</i> ) offshore	**	2,555 (0.36) <sup>1</sup>	Uncommon; mostly SE of SR	N.A.	Year-round resident, no seasonal peak	Continental shelf, slope, and offshore waters
Short-beaked common dolphin ( <i>Delphinus delphis</i> )	**	372,425 (0.22) <sup>3</sup>	Common and seasonally abundant	Increasing (due to changes in distribution?)	Year-round resident in southern SR; summer resident in northern SR; lower numbers in summer	Coast to 300 NM or farther from shore
Long-beaked common dolphin ( <i>Delphinus capensis</i> )	**	8,980 (0.64) <sup>3</sup>	Uncommon	Probably increasing (due to changes in distribution?)	Year-round resident, peak numbers in summer	Coast to 50 NM from shore

**Table 3.7-1. Summary of Information on Cetaceans that Might be Encountered in the Point Mugu Sea Range (continued)**

Species	Status	California Stock Size (CV)*	Abundance in Sea Range	Population Trend <sup>1</sup>	Seasonality	Habitat Preference
Northern right whale dolphin ( <i>Lissodelphis borealis</i> )	**	21,332 (0.43) <sup>4</sup>	Common	N.A.	Resident in SR in winter and spring, peak numbers in winter. Few in southern SR in summer	Continental slope; water 8-19°C
Short-finned pilot whale ( <i>Globicephala macrorhynchus</i> )	**Strategic	1,004 (0.37) <sup>3</sup>	Common before 1982, uncommon in SE part of SR now	A population shift from the SR occurred after the 1982 El Nino, some animals have returned	Year-round resident	Offshore and shallow waters
Cuvier's beaked whale ( <i>Ziphius cavirostris</i> )	**	9,163 (0.52)	Uncommon	N.A.	Unknown, but catches by whalers near the SR were Oct-Jan	Pelagic
Sperm whale ( <i>Physeter macrocephalus</i> )	**Endangered, depleted, and strategic	1,231 (0.39) <sup>3</sup> underestimated	Uncommon	Stable in coastal waters 1979-1991	Most common in autumn and winter but seasonal abundance varies	Usually pelagic; water >15°C; inshore when squid are abundant
Striped dolphin ( <i>Stenella coeruleoalba</i> )	**	24,910 (0.31) <sup>3</sup>	Occasional visitor from offshore	Probable increase over the last decade	Probably summer and autumn	100-300 NM or more offshore
Spinner dolphin ( <i>Stenella longirostris</i> )	**	N.A.	Rare	N.A.	Possible in summer	Warm nearshore waters
Spotted dolphin ( <i>Stenella attenuata</i> )	**	N.A.	Rare	N.A.	Possible in summer	
Rough-toothed dolphin ( <i>Steno bredanensis</i> )	**	N.A.	Rare	N.A.	Possible in summer	Warm nearshore waters
Killer Whale ( <i>Orcinus orca</i> )	**	747 (0.71) <sup>3</sup>	Uncommon	N.A.	Probable year-round resident	Widely distributed
False killer whale ( <i>Pseudorca crassidens</i> )	**	N.A.	Rare	N.A.	Possible in summer	Pelagic, tropical and sub-tropical waters

Table 3.7-1. Summary of Information on Cetaceans that Might be Encountered in the Point Mugu Sea Range (continued)

Species	Status	California Stock Size (CV)*	Abundance in Sea Range	Population Trend <sup>1</sup>	Seasonality	Habitat Preference
Baird's beaked whale ( <i>Berardius bairdii</i> )	**	380 (0.53) <sup>3</sup> probably biased downwards	Rare	N.A.	Present late spring to early autumn	Continental slope and pelagic
Blainville's beaked whale ( <i>Mesoplodon densirostris</i> )	**	728 (2.03) <sup>3</sup>	Rare	N.A.	Unknown	Pelagic
Other Mesoplodont beaked whales (Hector's, Stejneger's, Ginkgo-toothed, Hubbs') ( <i>Mesoplodon</i> spp.)	**	1,378 (0.58) <sup>3</sup>	Rare	N.A.	Unknown	Pelagic
Pygmy sperm whale ( <i>Kogia breviceps</i> )	**	3,145 (0.54) to 4,036 (incl. poss. dwarf sperm whales)	Rare	N.A.	Possible year round	Seaward of continental shelf
Dwarf sperm whale ( <i>Kogia simus</i> )	**	Fewer than 891 (2.04) <sup>1</sup> (incl. poss. pygmy sperm whales)	Possible visitor	N.A.	Possible in summer	Continental shelf
Northern right whale ( <i>Eubalaena glacialis</i> )	**Endangered	about 200 <sup>5</sup>	Rare	Near extinction	Sightings from Mar-May	Unknown, recent sightings have been nearshore
Humpback whale ( <i>Megaptera novaeangliae</i> )	**Endangered, depleted, and strategic	597 (0.07) <sup>7</sup>	Uncommon	Possible increase 1979-1993	Migratory during spring and autumn; feeding in summer	Nearshore waters
Gray whale ( <i>Eschrichtius robustus</i> )	**Delisted in 1994	23,109 (CV=0.074) <sup>6</sup>	Most of population passes through or east of SR during migration	Increasing	Southbound migration Dec-Feb, peaking in Jan; northbound Feb-May, peaking in March	Mostly coastal but offshore routes are used near the Channel Islands
Blue whale ( <i>Balaenoptera musculus</i> )	**Endangered, depleted, and strategic	1,785 (0.24) <sup>3</sup>	Uncommon	Increase 1979-1991, possibly in part due to change in distribution	Migratory, resident Jun-Nov	Primarily offshore

**Table 3.7-1. Summary of Information on Cetaceans that Might be Encountered in the Point Mugu Sea Range (continued)**

Species	Status	California Stock Size (CV)*	Abundance in Sea Range	Population Trend <sup>1</sup>	Seasonality	Habitat Preference
Fin whale ( <i>Balaenoptera physalus</i> )	**Endangered, depleted, and strategic	933 (0.27) <sup>3</sup>	Uncommon	Possible increase from 1979-1993	A few present year-round in S part of SR. Peak in summer when present throughout SR	Continental slope and offshore waters
Sei whale ( <i>Balaenoptera borealis</i> )	**Endangered, depleted, and strategic	A few to several 10's	Rare	N.A. but North Pacific population expected to have grown since mid-1960s	Migratory. Possible in spring, likely in summer	Primarily offshore, temperate waters
Bryde's whale ( <i>Balaenoptera edeni</i> )	**	24 (2.0)	Rare	N.A.	Summer?	Tropical to subtropical waters
Minke whale ( <i>Balaenoptera acutorostrata</i> )	**	201 (0.65) <sup>3</sup>	Uncommon, primarily in SE part of SR	N.A.	Migratory, peak in spring and summer, a few are present year-round	Primarily over continental shelf but some offshore

\*CV (coefficient of variation) is a measure of a number's variability. The larger the CV, the higher the variability.

\*\*Protected under the Marine Mammal Protection Act.

<sup>1</sup> Barlow et al. (1997).

<sup>2</sup> Central and Northern California stocks (Barlow and Forney 1994).

<sup>3</sup> Barlow and Gerrodette (1996).

<sup>4</sup> Forney et al. (1995).

<sup>5</sup> Braham and Rice (1984).

<sup>6</sup> Small and DeMaster (1995).

<sup>7</sup> Calambokidis and Steiger (1994).

stock in which human activities may be having a deleterious effect on the population and may not be sustainable. The stocks of blue, fin, sei, and humpback whales occurring off California are considered “strategic” (Barlow et al. 1997). In addition, the California stocks of the short-finned pilot whale (*Globicephala macrorhynchus*) and sperm whale (*Physeter macrocephalus*) have been designated as “strategic.” The stocks of minke whales (*Balaenoptera acutorostrata*) and mesoplodont beaked whales (collectively) off the coast of California, Oregon, and Washington have recently been reclassified as non-strategic (NMFS 1998; Barlow et al. 1998).

The species accounts that follow deal explicitly with species that occur regularly in the study area in moderate to high numbers, are designated as depleted or are part of a strategic stock under the MMPA, or are listed as endangered under the ESA. Other species that occur less regularly and have no special status are listed in [Table 3.7-1](#).

Overall, a comparison of cetacean abundance in 1979/80 vs. 1991 indicates that numbers of mysticetes and odontocetes have increased in offshore California waters over the 12-year period. However, this is not so for the harbor porpoise (*Phocoena phocoena*) and the short-finned pilot whale which appear to have decreased in numbers (Barlow 1994, 1995; Forney et al. 1995). The status of cetacean stocks and their abundance estimates for California are summarized in [Table 3.7-1](#) from marine mammal stock assessments prepared by the NMFS/Southwest Fisheries Science Center (SWFSC) (Barlow et al. 1997).

## B - Pinnipeds

Six species of pinnipeds occur in the Point Mugu Sea Range ([Table 3.7-2](#)). The four most abundant species include the harbor seal (*Phoca vitulina*), northern elephant seal (*Mirounga angustirostris*), California sea lion (*Zalophus californianus*), and northern fur seal (*Callorhinus ursinus*). These four species breed on land within the Sea Range. The overall abundance of these species increased rapidly on the Channel Islands between the end of commercial exploitation in the 1920s and the mid-1980s. The growth rates of populations of some species appear to have declined after the mid-1980s, and some recent survey data suggest that localized populations of some species may be declining. These declines may be due either to interspecific competition or to population numbers having exceeded the carrying capacity of the environment (Stewart et al. 1993; Hanan 1996). However, most populations continue to increase rapidly, and in some cases seals have recently occupied new rookeries and haul-out areas. These four pinniped species are not listed as endangered or threatened under the ESA (Barlow et al. 1997).

Two of the six pinniped species on the Sea Range are less common. The Guadalupe fur seal (*Arctocephalus townsendi*) is an occasional visitor to the Channel Islands and breeds only on Guadalupe Island, Mexico, which is approximately 250 NM (460 km) south of the Sea Range. The Steller sea lion (*Eumetopias jubatus*) was once abundant in the region, but numbers have declined rapidly since 1938. No adult Steller sea lions have been sighted since 1983 (NMFS 1992). The Guadalupe fur seal and the Steller sea lion are federally designated as threatened and depleted species and their stocks are considered to be strategic stocks. The Guadalupe fur seal is listed as threatened and fully protected by California state legislation.

Populations of seals may be impacted by changes in the distribution and abundance of their prey species. The El Niño event of 1983 temporarily reduced resources for most pinnipeds in the Channel Islands (Trillmich et al. 1991). As a consequence, pinnipeds spent more time at sea searching for prey (Stewart and Yochem 1991), and there was a decline in the number of pups and adults counted at rookeries. However, overall population declines may have been less pronounced than suggested by shore counts. Specific information about population changes during the 1998 El Niño event are not yet available.

Table 3.7-2. Summary of Information on Pinnipeds and Sea Otters that Might Be Encountered in the Point Mugu Sea Range

Pinnipeds	Status	California stock size	Abundance in study area	Population trend	Foraging locations	Common prey
Harbor seal ( <i>Phoca vitulina richardsi</i> )	*	30,293 <sup>1</sup>	3,600-4,600 <sup>2</sup>	+1.9%/yr in study area; +3.5%/yr in California	most <5km from shore; occasionally to 50 km	rockfish, spotted cusk-eel, octopus, plainfin midshipman, shiner surfperch
Northern elephant seal ( <i>Mirounga angustirostris</i> )	*	84,000 <sup>1</sup>	71,000	+8.3%/yr; may have slowed or declined since 1994	40° and 45° N lat. for females, further N for males <sup>3</sup>	squid, Pacific whiting, pelagic red crab, octopus, hake, ratfish, rockfish, angel and blue shark, stingray <sup>4,5</sup>
California sea lion ( <i>Zalophus californianus californianus</i> )	*	167,000-188,000 <sup>1</sup>	159,000-179,000 >95% of US stock	+8.3%/yr	1-100 km from rookery, mean 54.2 km; mean depth 323 m <sup>6</sup>	northern anchovy, Pacific whiting, market squid, nail squid, red octopus, rockfish, jack mackerel <sup>7</sup>
Steller sea lion ( <i>Eumetopias jubatus</i> )	*threatened	2,000 in 1989 <sup>8</sup>	rare	declining	?	fish diet on Sea Range uncertain
Guadalupe fur seal ( <i>Arctocephalus townsendi</i> )	*threatened	7,408 for Guadalupe Is. in 1993 <sup>9</sup>	occasional	+13.7%/yr	up to 444 km from rookery <sup>10</sup>	unknown, but includes squid <sup>9</sup>
Northern fur seal ( <i>Callorhinus ursinus</i> )	*	10,036 <sup>1</sup>	10,036	+25%/yr since 1983	1-137 km from San Miguel, mean 72.3 km; mean water depth 933 m; 92% forage NW of San Miguel <sup>6</sup>	northern anchovy, lanternfish, Pacific whiting, market squid, nail squid, Pacific saury <sup>11</sup>
Fissiped						
Southern sea otter ( <i>Enhydra lutris nereis</i> )	*threatened	2,377 <sup>12</sup>	17 <sup>12</sup>	+5-7%/yr in California <sup>12</sup>	rocky coastline with kelp beds; 20 m deep (max. 100 m) <sup>12</sup>	mussels, clams, abalone, sea urchins, sea stars <sup>12</sup>

\*Protected under the Marine Mammal Protection Act.

<sup>1</sup>Barlow et al. (1997).

<sup>2</sup>Stewart and Yochem (1985).

<sup>3</sup>Stewart and DeLong (1995).

<sup>4</sup>Condit (1984).

<sup>5</sup>Antonelis et al. 1987.

<sup>6</sup>post-partum females on San Miguel, Antonelis et al. (1990).

<sup>7</sup>Lowry et al. (1991).

<sup>8</sup>Loughlin et al. 1992.

<sup>9</sup>Hanni et al. 1997.

<sup>10</sup>Hanan and Besson 1994.

<sup>11</sup>Stroud et al. (1981).

<sup>12</sup>USFWS (1996).

## C - Sea Otter

The southern sea otter (*Enhydra lutris nereis*) occurs along the coast of central California between Point Año Nuevo and Purisima Point, and a small experimental population has been translocated to San Nicolas Island. Sea otters were heavily harvested during the 18<sup>th</sup> and 19<sup>th</sup> centuries and were nearly exterminated from California waters. The existing population is believed to have expanded primarily from a remnant population at Bixby Creek along the coast of southern Monterey County (Leatherwood et al. 1978). These sea otters were protected in 1911, and the population has slowly increased and expanded its range. Aside from the small translocated population at San Nicolas Island, few sea otters are expected to occur within the Point Mugu Sea Range because of their preference for relatively shallow (approximately 66 feet [20 m] deep) coastal waters. (The Sea Range does not include any of the mainland coastline.) The information on sea otter distribution and abundance has come from surveys and reports by the USFWS and the CDFG.

The southern sea otter is federally listed as threatened under the ESA and designated as depleted under the MMPA.

### 3.7.1.3 Region of Influence

The species accounts that follow deal explicitly with species that occur regularly in the study area in moderate to high numbers, or are designated as depleted or part of a strategic stock under the MMPA, or are listed as endangered under the ESA. Marine mammals inhabiting the entire Sea Range and areas between the Sea Range and coast are discussed in this section. Populations and population trends of pinnipeds that haul out on islands that are not included within the scope of the EIS are discussed because these data provide the best estimates of populations that could be found in marine waters of the Sea Range.

### 3.7.2 Sea Range

This section describes the occurrence of marine mammals at sea within the Sea Range. Species occurring on land or close to shore are further described in subsequent sections concerning Point Mugu, San Nicolas Island, and Other Channel Islands (Sections 3.7.3-3.7.5, respectively). For additional details, refer to the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e).

## A - Previous Estimates

Forney et al. (1995), Barlow and Gerrodette (1996), Barlow (1995), and Forney and Barlow (1998) have estimated population sizes for cetaceans off southern California, although not specifically for the waters included in the Point Mugu Sea Range. Their estimates are based on aerial survey data collected during winter (February to April) and ship-based surveys conducted during summer (August to October). The NMFS estimates include correction factors to account for animals at the surface but missed by the observers and to account for the greater likelihood of spotting large groups vs. small groups. However, these estimates generally do not include correction factors to account for animals that were missed because they were below the surface as the aircraft or ship passed the animals (availability bias). This problem causes a greater underestimation of the number of animals present during aerial than during ship-based surveys, given the shorter potential observation time from a rapidly-moving aircraft. Correction factors for availability bias are under development by NMFS/SWFSC but are available for only a few species (Barlow and Sexton 1996; Forney and Barlow 1998; Carretta et al. 1998).

## B - Normalization

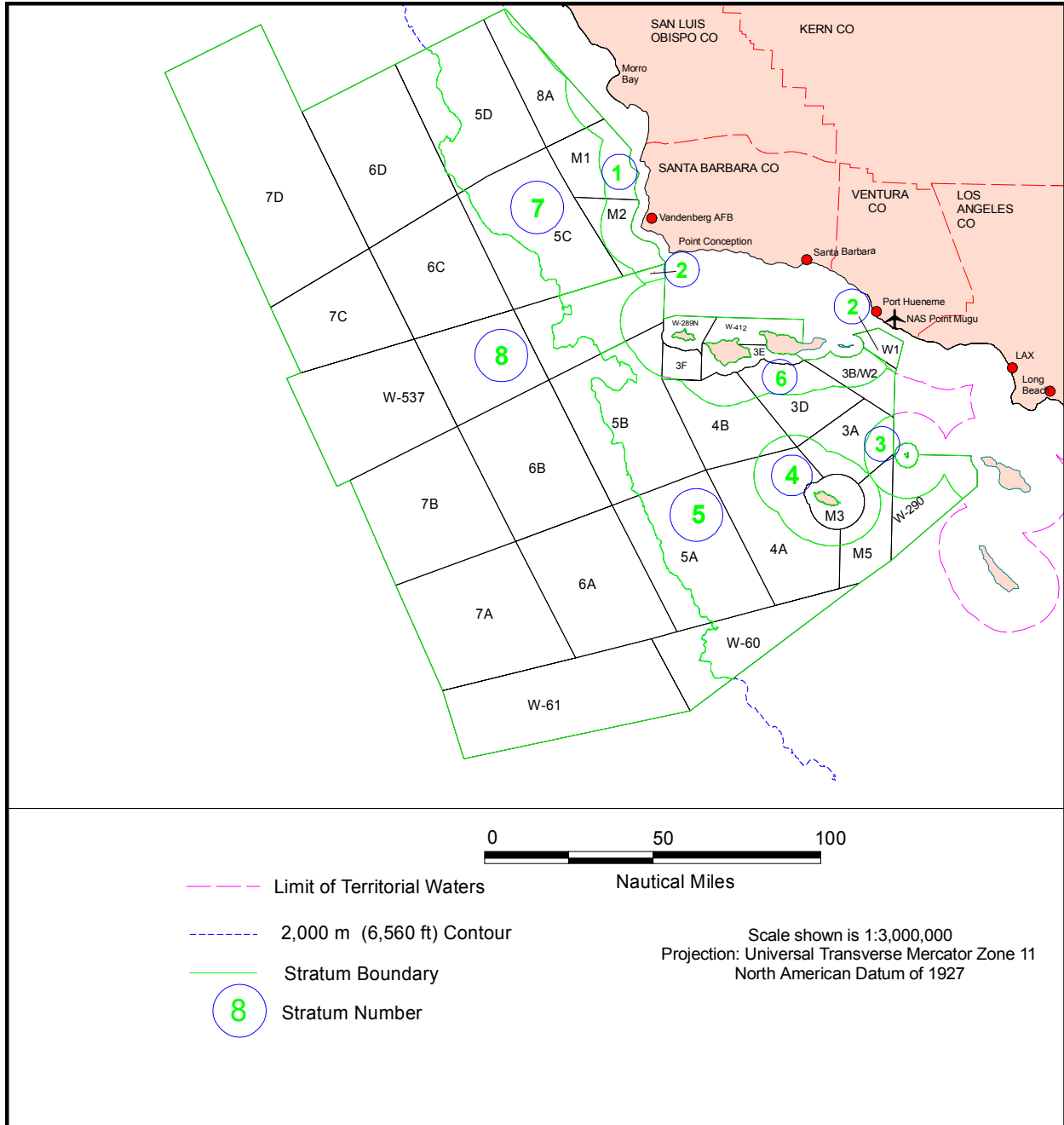
In order to assess the impacts of proposed Navy activities on different species of marine mammals, it was necessary to estimate the average numbers of each species that might be present in various areas within the Sea Range at different times of year. Because of the different biases associated with different survey methods, it was not valid to use the data from the above studies as direct indicators of mammal densities or numbers at sea in various parts of the Sea Range. In addition to the above biases, the densities computed in the SWFSC reports and publications were computed for large areas that are subject to considerable variation in oceanographic conditions. Thus, the SWFSC mean densities were not directly applicable to the specific conditions in the Sea Range. Densities needed to be computed for smaller areas with geographic and oceanographic conditions that were similar to those in the Sea Range.

With the guidance of NMFS/SWFSC personnel, a method was developed to account for the known biases, to the degree possible, and to summarize the existing data according to the seasons and geographic areas required for this assessment. This method is described in detail in the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e), specifically its Section 3.7.1.5 and its Appendix A. Densities of marine mammals at sea were derived primarily from recent SWFSC ship and aerial survey data. In addition, the large amount of information from older surveys conducted for the Minerals Management Service (MMS) has been taken into account in estimating relative numbers of cetaceans and absolute numbers of pinnipeds present in different seasons. Pinniped sightings were corrected to account for changes in population sizes since the surveys. Densities were calculated separately for each species and for each of four seasons (see [Section 3.7.2-C](#), Seasonal Presentation). Densities were computed separately for the eight “strata” outlined in green on [Figure 3.7-1](#). Computed densities included correction factors to account for animals missed because they were below the surface (availability bias). Computed densities also included correction factors for animals at the surface but not sighted by the observers. These correction factors differ with type of marine mammal and type of survey. Also, incompletely identified animals (e.g., “unidentified pinniped” or “unidentified dolphin”) have been taken into account by apportionment. A detailed description of the methods used to estimate marine mammal densities and associated confidence intervals can be found in Appendix A of the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e).

The “corrected estimates” presented in this document are higher and presumably less biased than previous estimates based on the SWFSC data because the new estimates include factors to account for availability bias and unidentified animals. The individual estimates represent mean numbers expected during each of the seasons for which estimates could be computed. However, it is emphasized that these estimates are subject to much uncertainty and variability. A large number of assumptions and correction factors are involved. On any given day, considerably larger or smaller numbers of marine mammals could be present in each range area.

The stated coefficients of variation (CV) are indicators of the uncertainty in the estimated numbers present during the surveys on which the estimate is based. The uncertainty associated with movements of animals into or out of an area due to factors such as availability of prey or changing conditions is much larger than is indicated by the CVs that are given. (Note: The CV is an index of uncertainty. It can range from zero, indicating no uncertainty, upward to high values. When CV exceeds 1.0, the estimate is very uncertain – actual values could range from zero to more than twice the “best” estimates.)





**Figure 3.7-1**  
**Boundaries of strata used to calculate densities and numbers of marine mammals**  
**in various portions of the Sea Range.**

C - Seasonal Presentation

Previous studies conducted in southern California, including the Bureau of Land Management (BLM)/MMS surveys of southern and central California, have generally summarized marine mammal data by calendar quarter (i.e., January to March, April to June, July to September, and October to December).

Recent studies by SWFSC have recognized that changes in marine mammal distribution in southern California are often related to changes in oceanographic conditions that do not coincide with calendar seasons. Winter oceanographic conditions typically extend from February to April, spring conditions from May to July, summer conditions from August to October, and autumn conditions from November to January. When presenting and discussing seasonal distribution and abundance of marine mammals in the Sea Range, the “oceanographic seasons” have been used because they better coincide with changes in marine mammal distribution (Forney 1997) and with the timing of recent SWFSC surveys. The original reports of pre-1990 studies were analyzed and presented by calendar quarter. Therefore, in some cases, the data have been interpreted differently here than in the original reports. [Table 3.7-3](#) presents estimated numbers of marine mammals of each species present in the Sea Range during each season. [Table 3.7-4](#) shows the estimated densities for the various strata shown in [Figure 3.7-1](#).

### 3.7.2.1 Odontocetes (Toothed Whales)

#### Harbor Porpoise, *Phocoena phocoena*

Harbor porpoises do not have a special status in California and fewer than 200 individuals are expected to be found within the Sea Range. However, the species is common inshore of the northern part of the Sea Range. They are more abundant in the Sea Range during autumn and winter than during spring and summer. They dive to depths less than 660 feet (200 m) and feed mainly on bottom-dwelling fish and invertebrates. Supporting literature references and additional details for this and other species on the Sea Range are given in the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e).

#### Dall’s Porpoise, *Phocoenoides dalli*

The Dall’s porpoise does not have a special status. It is the most abundant cetacean in the North Pacific Ocean, although not on the Sea Range (see Common Dolphin, below). During the winter, it is common throughout the Point Mugu Sea Range and approximately 9,500 individuals are present in this area at that time (see [Table 3.7-3](#)). There are seasonal changes in distribution and abundance; these changes are probably related to changes in water temperature. During the spring and autumn, lower numbers are present in the Sea Range. Relatively few Dall’s porpoises are present in the southern part of the Sea Range during summer, but low to moderate numbers remain in the northern part. Juveniles are more likely to be found close to shore and large adults farther offshore. Females with calves remain mainly outside of the Sea Range. Dall’s porpoises feed primarily at night on fish and cephalopods.

#### Pacific White-sided Dolphin, *Lagenorhynchus obliquidens*

The Pacific white-sided dolphin does not have a special status and it is probably the most abundant delphinid in temperate waters of the North Pacific Ocean. It is widely distributed throughout the Sea Range except for shallow and nearshore areas. The number present in the Sea Range at any time of year may be highly variable and there may be year-to-year or seasonal shifts in abundance that are related to changes in water temperature and/or changes in prey abundance. In most years, this species is abundant in the Sea Range during autumn to spring when an estimated 23,000 to 28,000 animals are present (see [Table 3.7-3](#)). Most Pacific white-sided dolphins move northward during summer when only about 1,000 individuals remain in the Sea Range. As many as 25,000 animals are found in non-Territorial Waters and as many as 9,500 in Territorial Waters. Mean group size in the study area is about 80 animals. Pacific white-sided dolphins feed primarily on fish at night in the epipelagic zone where they may dive to depths of 700 feet (210 m) or more.



**Table 3.7-3. Estimated numbers of marine mammals of each species present in the Point Mugu Sea Range during each season. The estimated numbers incorporate estimates of availability bias.**

Species	Numbers Estimated to be Present During Months (CV) <sup>1</sup>							Maximum Numbers Present
	Feb-Apr	May-Jul	Aug-Oct	Nov-Jan				
Harbor porpoise <sup>2</sup>	188 (>0.86)	85 (>0.99)	92 (>0.98)	208 (>0.84)				208
Territorial Waters	188 (>0.86)	85 (>0.99)	92 (>0.98)	208 (>0.84)				208
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
Dall's porpoise	9,500 (0.54)	3,763 (>0.50)	2,514 (>0.60)	8,718 (0.50)				9,500
Territorial Waters	1,126 (0.72)	1,879 (0.88)	1,527 (0.87)	1,581 (0.80)				1,879
non-Territorial Waters	8,375 (0.60)	1,884 (0.46)	987 (0.76)	7,137 (0.59)				8,375
Pacific white-sided dolphin	22,765 (>0.50)	27,875 (0.50)	966 (>0.65)	24,739 (0.46)				27,875
Territorial Waters	103 (>1.46)	3,028 (1.07)	216 (>0.94)	9,467 (0.81)				9,467
non-Territorial Waters	22,662 (0.50)	24,847 (0.55)	750 (0.80)	15,273 (0.55)				24,847
Risso's dolphin	40,536 (0.45)	14,761 (>0.38)	11,645 (0.35)	41,865 (0.43)				41,865
Territorial Waters	8,272 (0.62)	75 (>0.94)	4,611 (0.62)	1,218 (0.85)				8,272
non-Territorial Waters	32,263 (0.54)	14,686 (0.38)	7,034 (0.42)	40,647 (0.44)				40,647
Coastal bottlenose dolphin	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
Offshore bottlenose dolphin	534 (>0.94)	0 (>1.00)	2,942 (>0.47)	949 (>0.73)				2,942
Territorial Waters	0 (>1.00)	0 (>1.00)	1,776 (0.65)	409 (1.16)				1,776
non-Territorial Waters	534 (0.94)	0 (>1.00)	1,166 (0.63)	540 (0.94)				1,166
Common dolphin <sup>3</sup>	220,565 (0.34)	239,938 (>0.28)	154,461 (0.24)	233,639 (>0.40)				239,938
Territorial Waters	117,658 (0.50)	109,264 (>0.52)	81,134 (0.42)	88,969 (>0.54)				117,658
non-Territorial Waters	102,907 (0.47)	130,674 (>0.29)	73,326 (0.21)	144,670 (>0.55)				144,670
Northern right whale dolphin	87,128 (0.38)	77,774 (0.53)	4,058 (>0.63)	15,372 (0.56)				87,128
Territorial Waters	5,862 (0.79)	231 (1.37)	348 (>1.33)	1,477 (1.11)				5,862
non-Territorial Waters	81,266 (0.40)	77,543 (0.53)	3,710 (>0.68)	13,895 (0.61)				81,266
Short-finned pilot whale	Possible	Possible	Present	Possible				0
Territorial Waters	Possible	Possible	Present	Possible				0
non-Territorial Waters	Possible	Possible	Present	Possible				0
Cuvier's beaked whale	2,044 (>0.52)	2,044 (>0.52)	2,044 (>0.52)	2,044 (>0.52)				2,044
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
non-Territorial Waters	2,044 (>0.52)	2,044 (>0.52)	2,044 (>0.52)	2,044 (>0.52)				2,044
Sperm whale	3,744 (>0.61)	0 (>1.00)	345 (>0.63)	5,013 (>0.78)				5,013
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
non-Territorial Waters	3,744 (>0.61)	0 (>1.00)	345 (>0.63)	5,013 (>0.78)				5,013
Striped dolphin	0 (>1.00)	4,605 (>0.94)	7,887 (>0.57)	Present				7,887
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
non-Territorial Waters	0 (>1.00)	4,605 (>0.94)	7,887 (>0.57)	Present				7,887
Spinner dolphin	0 (>1.00)	0 (>1.00)	Possible	0 (>1.00)				0
Territorial Waters	0 (>1.00)	0 (>1.00)	Possible	0 (>1.00)				0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
Spotted dolphin	0 (>1.00)	0 (>1.00)	Possible	0 (>1.00)				0
Territorial Waters	0 (>1.00)	0 (>1.00)	Possible	0 (>1.00)				0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0
Rough-toothed dolphin	0 (>1.00)	0 (>1.00)	Possible	0 (>1.00)				0
Territorial Waters	0 (>1.00)	0 (>1.00)	Possible	0 (>1.00)				0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)				0

**Table 3.7-3. Estimated numbers of marine mammals of each species present in the Point Mugu Sea Range during each season (continued)**

Species	Numbers Estimated to be Present During Months (CV) <sup>1</sup>							Maximum Numbers Present
	Feb-Apr	May-Jul	Aug-Oct	Nov-Jan				
Killer whale	361 (0.48)	361 (0.48)	361 (0.48)	361 (0.48)				361
Territorial Waters	43 (0.88)	43 (0.88)	43 (0.88)	43 (0.88)				43
non-Territorial Waters	318 (0.53)	318 (0.53)	318 (0.53)	318 (0.53)				318
False killer whale	0 (>1.00)	0 (>1.00)	Possible				0 (>1.00)	0
Territorial Waters	0 (>1.00)	0 (>1.00)	Possible				0 (>1.00)	0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0 (>1.00)	0
Baird's beaked whale	<148 (>0.71)	148 (>0.71)	>148 (>0.71)	148 (>0.71)			148 (>0.71)	148
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0 (>1.00)	0
non-Territorial Waters	<148 (0.71)	148 (0.71)	>148 (0.71)	148 (0.71)			148 (0.71)	148
Other beaked whales	573 (>0.71)	573 (>0.71)	573 (>0.71)	573 (>0.71)			573 (>0.71)	573
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0 (>1.00)	0
non-Territorial Waters	573 (0.71)	573 (0.71)	573 (0.71)	573 (0.71)			573 (0.71)	573
Pygmy sperm whale	Possible	Possible		Present			Possible	0
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0 (>1.00)	0
non-Territorial Waters	Possible	Possible		Present			Possible	0
Dwarf sperm whale	0 (>1.00)	0 (>1.00)	Possible				0 (>1.00)	0
Territorial Waters	0 (>1.00)	0 (>1.00)	Possible				0 (>1.00)	0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0 (>1.00)	0
Northern right whale	Possible	Possible		0 (>1.00)			0 (>1.00)	0
Territorial Waters	Possible	Possible		0 (>1.00)			0 (>1.00)	0
non-Territorial Waters	Possible	Possible		0 (>1.00)			0 (>1.00)	0
Humpback whale	0 (>1.00)	125 (>0.59)	220 (>0.48)	13 (>0.94)			220	220
Territorial Waters	0 (>1.00)	8 (0.83)	101 (0.62)	0 (>1.00)			101	101
non-Territorial Waters	0 (>1.00)	117 (0.63)	119 (0.71)	13 (0.94)			119	119
Gray whale	2,345 (>0.41)	61 (>0.63)	0 (>1.00)	1,747 (>0.37)			2,345	2,345
Territorial Waters	1,704 (0.51)	61 (>0.63)	0 (>1.00)	1,505 (0.42)			1,704	1,704
non-Territorial Waters	641 (>0.65)	0 (>1.00)	0 (>1.00)	242 (>0.69)			641	641
Blue whale	266 (>0.94)	1,235 (>0.51)	1,612 (>0.29)	0 (>1.00)			1,612	1,612
Territorial Waters	0 (>1.00)	35 (>1.00)	135 (>0.72)	0 (>1.00)			135	135
non-Territorial Waters	266 (>0.94)	1,200 (>0.52)	1,478 (0.31)	0 (>1.00)			1,478	1,478
Fin whale	262 (>0.72)	182 (>0.68)	1,477 (>0.38)	492 (>0.58)			1,477	1,477
Territorial Waters	0 (>1.00)	11 (>0.94)	0 (>1.00)	253 (>0.94)			253	253
non-Territorial Waters	262 (>0.72)	171 (>0.72)	1,477 (>0.38)	239 (>0.65)			1,477	1,477
Sei whale	0 (>1.00)	0 (>1.00)	9 (>0.94)	0 (>1.00)			9	9
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0	0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	9 (>0.94)	0 (>1.00)			9	9
Bryde's whale	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0	0
Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0	0
non-Territorial Waters	0 (>1.00)	0 (>1.00)	0 (>1.00)	0 (>1.00)			0	0
Minke whale	179 (0.68)	179 (0.68)	179 (0.68)	179 (0.68)			179 (0.68)	179
Territorial Waters	21 (0.89)	21 (0.89)	21 (0.89)	21 (0.89)			21 (0.89)	21
non-Territorial Waters	158 (0.62)	158 (0.62)	158 (0.62)	158 (0.62)			158 (0.62)	158
Harbor seal	914 (>0.65)	2,860 (>0.49)	927 (>0.69)	2,065 (>0.64)			2,860	2,860
Territorial Waters	914 (>0.65)	2,026 (>0.57)	306 (>0.82)	2,065 (>0.64)			2,065	2,065
non-Territorial Waters	0 (>1.00)	834 (>0.94)	621 (>0.94)	0 (>1.00)			834	834



**Table 3.7-3. Estimated numbers of marine mammals of each species present in the Point Mugu Sea Range during each season (continued)**

Species	Numbers Estimated to be Present During Months (CV) <sup>1</sup>								Maximum Numbers Present
	Feb-Apr		May-Jul		Aug-Oct		Nov-Jan		
Northern elephant seal	26,623	(>0.39)	6,495	(>0.50)	7,409	(>0.33)	11,356	(>0.48)	26,623
Territorial Waters	9,221	(>0.55)	3,976	(>0.71)	1,617	(>0.54)	1,737	(>0.58)	9,221
non-Territorial Waters	17,401	(0.52)	2,519	(>0.65)	5,792	(0.39)	9,619	(0.56)	17,401
California sea lion	45,227	(0.27)	163,512	(0.18)	72,276	(0.15)	133,414	(0.20)	163,512
Territorial Waters	22,692	(0.32)	87,635	(0.22)	45,579	(0.19)	47,964	(0.21)	87,635
non-Territorial Waters	22,535	(0.42)	75,876	(0.29)	26,696	(0.24)	85,449	(0.28)	85,449
Northern fur seal	44,641	(>0.23)	3,828	(>0.46)	2,553	(>0.31)	22,914	(>0.36)	44,641
Territorial Waters	807	(>0.65)	36	(>0.83)	195	(>0.62)	441	(>0.87)	807
non-Territorial Waters	43,834	(0.23)	3,792	(0.47)	2,358	(>0.33)	22,474	(0.36)	43,834

<sup>1</sup> CV = coefficient of variation of the estimate. CVs that are given underestimate the true variation because they do not take account of variation associated with the diving behavior of marine mammals.

<sup>2</sup> Includes separate estimates for central and northern California.

<sup>3</sup> Includes both short-beaked and long-beaked common dolphins.

#### Risso's Dolphin, *Grampus griseus*

Risso's dolphin does not have a special status and is common throughout the range and throughout the year. Maximum numbers are present in the Sea Range during autumn and winter when about 32,000 animals, or most of the California population, are expected to be present. Lowest numbers are present during summer when about 11,600 animals are present in the Sea Range. Numbers present in specific areas are highly variable and are likely related to sea surface temperature and the abundance of squid, their major prey. Estimated numbers of Risso's dolphins in Territorial Waters vary from 75 individuals (spring) to 8,272 (winter) and numbers in non-Territorial Waters vary from 7,034 (summer) to 40,647 (autumn). The mean group size in the Sea Range is 42 (or 25 if five large groups are excluded); one group of 2,500 has been sighted. Both adult and immature Risso's dolphins are likely to occur in the Sea Range at all times of year.

#### Bottlenose Dolphin, *Tursiops truncatus*

There are two stocks of bottlenose dolphins in and near the Sea Range: a coastal stock and an offshore stock. Neither stock has a special status but the coastal stock is small and is vulnerable to any population declines. Coastal bottlenose dolphins have not been identified within the Point Mugu Sea Range although they are commonly sighted in coastal and nearshore areas east and southeast of the Sea Range. Offshore bottlenose dolphins are present year-round but are more abundant during summer, when approximately 2,942 dolphins are present. Highest densities of bottlenose dolphins are found in the southeastern part of the Sea Range. During summer about 60 percent of the bottlenose dolphins in the Sea Range are found in Territorial Waters. During other times of the year, they are probably more common in non-Territorial than Territorial Waters. Bottlenose dolphins are opportunistic feeders that regularly forage near the bottom on fish.

#### Common Dolphin, *Delphinus* spp.

The common dolphin does not have a special status, and the population off the coast of California has increased substantially in the past 20 years. There are two species: the long-beaked common dolphin,

**Table 3.7-4. Estimated densities of marine mammals (number/km<sup>2</sup>) and coefficients of variation (CV) (in parenthesis) of each species present in the Point Mugu Sea Range during each oceanographic season. The estimated densities incorporate estimates of availability bias. Densities in bold type are based on NMFS/SWFSC and MMS/BLM data. All CVs\* are underestimated because they did not include estimates of the variance associated with diving behavior. All CVs for estimates using both NMFS/SWFSC and MMS/BLM data have additional uncertainty associated with combining the data from different survey methods and from different time periods.**

Stratum	February-April		May-July		August-October		November-January	
	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV
<b>Harbor porpoise</b>								
1	<b>0.10608</b>	(0.86)	<b>0.04793</b>	(0.99)	<b>0.05198</b>	(0.98)	<b>0.11687</b>	(0.84)
5	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
6 (2, 3, 4, 6)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)
7	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
All Strata	<b>0.00202</b>	(>0.86)	<b>0.00091</b>	(>0.99)	0.00099	(>0.98)	<b>0.00223</b>	(>0.84)
<b>Dall's porpoise</b>								
1	<b>0.10189</b>	(1.33)	<b>0.17520</b>	(0.49)	<b>0.16287</b>	(0.60)	<b>0.14634</b>	(0.54)
5	0.10189	(0.74)	0.05256	(0.83)	0.04129	(0.94)	0.16945	(0.68)
6 (2, 3, 4, 6)	0.10189	(0.82)	<b>0.16912</b>	(1.05)	<b>0.13346</b>	(1.07)	<b>0.14245</b>	(0.95)
7	<b>0.10189</b>	(1.12)	<b>0.10928</b>	(0.48)	<b>0.03293</b>	(1.27)	<b>0.09903</b>	(0.55)
8	0.10189	(0.83)	0.00000	(>1.00)	0.00000	(>1.00)	0.06068	(1.08)
All Strata	<b>0.10189</b>	(0.54)	<b>0.04035</b>	(>0.50)	0.02696	(>0.60)	<b>0.09350</b>	(0.50)
<b>Pacific white-sided dolphin</b>								
1	<b>0.05815</b>	(1.46)	<b>0.02109</b>	(0.83)	0.00000	(>1.00)	<b>0.09836</b>	(0.72)
5	0.40703	(0.68)	0.42818	(0.63)	0.00000	(>1.00)	0.41177	(0.68)
6 (2, 3, 4, 6)	0.00000	(>1.00)	<b>0.32262</b>	(1.08)	0.02328	(0.94)	1.00227	(0.83)
7	1.06252	(0.94)	<b>0.25636</b>	(0.48)	0.06678	(0.94)	<b>0.22862</b>	(0.45)
8	0.10748	(0.76)	0.27307	(0.83)	0.00227	(0.94)	<b>0.11271</b>	(1.10)
All Strata	<b>0.24414</b>	(>0.50)	<b>0.29894</b>	(0.50)	0.01036	(>0.65)	<b>0.26531</b>	(0.46)
<b>Risso's dolphin</b>								
1	<b>0.19529</b>	(1.26)	<b>0.04196</b>	(0.94)	<b>0.14649</b>	(1.40)	<b>0.25369</b>	(0.76)
5	0.59335	(0.63)	0.27931	(0.68)	0.08831	(0.76)	0.69258	(0.57)
6 (2, 3, 4, 6)	0.85487	(0.65)	<b>0.00000</b>	(>1.00)	0.46926	(0.65)	<b>0.08278</b>	(1.27)
7	0.35979	(0.94)	<b>0.52688</b>	(0.48)	0.33361	(0.76)	<b>1.25914</b>	(0.36)
8	0.33922	(0.83)	0.09180	(0.76)	0.04384	(0.59)	<b>0.31043</b>	(0.93)
All Strata	<b>0.43472</b>	(0.45)	<b>0.15830</b>	(0.38)	0.12488	(0.35)	<b>0.44898</b>	(0.43)
<b>Bottlenose dolphin</b>								
1	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)
5	0.03240	(0.94)	0.00000	(>1.00)	0.05652	(0.76)	0.03278	(0.94)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.19157	(0.65)	<b>0.04412</b>	(1.16)
7	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00415	(0.83)	0.00000	(>1.00)
All Strata	<b>0.00573</b>	(>0.94)	<b>0.00000</b>	(>1.00)	0.03155	(>0.47)	<b>0.01018</b>	(>0.73)



**Table 3.7-4. Estimated densities of marine mammals (number/km<sup>2</sup>) and coefficients of variation (in parenthesis) of each species present in the Point Mugu Sea Range during each oceanographic season (continued)**

Stratum	February-April		May-July		August-October		November-January	
	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV
<b>Common dolphin</b>								
1	23.33505	(0.83)	14.46994	(>1.00)	7.66789	(0.76)	14.46994	(>1.00)
5	1.42719	(0.65)	1.77636	(0.39)	1.00386	(0.54)	2.44465	(0.63)
6 (2, 3, 4, 6)	8.21981	(0.63)	9.01302	(0.68)	7.28223	(0.48)	6.82394	(0.76)
7	2.90402	(0.94)	1.41911	(>1.00)	0.51117	(0.76)	1.41911	(>1.00)
8	0.92809	(0.72)	1.56338	(0.41)	0.92227	(0.23)	1.61623	(0.83)
All Strata	2.36543	(0.34)	2.57319	(>0.28)	1.65650	(0.24)	2.50564	(>0.40)
<b>Northern right whale dolphin</b>								
1	<b>0.17436</b>	(1.40)	<b>0.01741</b>	(0.94)	<b>0.19599</b>	(1.33)	<b>0.09484</b>	(0.83)
5	2.39314	(0.48)	1.57550	(0.68)	0.00000	(>1.00)	0.33666	(0.60)
6 (2, 3, 4, 6)	0.59887	(0.83)	<b>0.02155</b>	(1.57)	0.00000	(>1.00)	<b>0.14112</b>	(1.25)
7	2.28260	(0.94)	<b>0.28256</b>	(0.53)	0.00000	(>1.00)	<b>0.19449</b>	(0.49)
8	0.36474	(0.83)	0.86773	(0.76)	0.06577	(0.68)	<b>0.11586</b>	(1.19)
All Strata	<b>0.93440</b>	(0.38)	<b>0.83408</b>	(0.53)	<b>0.04352</b>	(>0.63)	<b>0.16485</b>	(0.56)
<b>Cuvier's beaked whale</b>								
1	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.02487	(0.66)	0.02487	(0.66)	0.02487	(0.66)	0.02487	(0.66)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
7	0.02487	(1.11)	0.02487	(1.11)	0.02487	(1.11)	0.02487	(1.11)
8	0.02487	(0.71)	0.02487	(0.71)	0.02487	(0.71)	0.02487	(0.71)
All Strata	0.02193	(>0.52)	0.02193	(>0.52)	0.02193	(>0.52)	0.02193	(>0.52)
<b>Sperm whale</b>								
1	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)	<b>0.00000</b>	(>1.00)
5	0.03835	(0.76)	0.00000	(>1.00)	0.01254	(0.94)	0.00000	(>1.00)
6 (2, 3, 4, 6)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)
7	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)	0.00000	(>1.00)	<b>0.03247</b>	(0.83)
8	0.05517	(0.72)	0.00000	(>1.00)	0.00245	(0.68)	0.08352	(0.83)
All strata	<b>0.04015</b>	(>0.61)	<b>0.00000</b>	(>1.00)	0.00370	(>0.63)	<b>0.05376</b>	(>0.78)
<b>Striped dolphin</b>								
1	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
7	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
8	0.00000	(>1.00)	0.08164	(0.94)	0.13983	(0.57)	0.00000	(>1.00)
All strata	0.00000	(>1.00)	0.04938	(>0.94)	0.08459	(>0.57)	0.00000	(>1.00)
<b>Killer whale</b>								
1	0.00387	(1.37)	0.00387	(1.37)	0.00387	(1.37)	0.00387	(1.37)
5	0.00387	(0.84)	0.00387	(0.84)	0.00387	(0.84)	0.00387	(0.84)
6 (2, 3, 4, 6)	0.00387	(1.01)	0.00387	(1.01)	0.00387	(1.01)	0.00387	(1.01)
7	0.00387	(1.24)	0.00387	(1.24)	0.00387	(1.24)	0.00387	(1.24)
8	0.00387	(0.71)	0.00387	(0.71)	0.00387	(0.71)	0.00387	(0.71)
All strata	0.00387	(0.48)	0.00387	(0.48)	0.00387	(0.48)	0.00387	(0.48)

**Table 3.7-4. Estimated densities of marine mammals (number/km<sup>2</sup>) and coefficients of variation (in parenthesis) of each species present in the Point Mugu Sea Range during each oceanographic season (continued)**

Stratum	February-April		May-July		August-October		November-January	
	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV
<b>Baird's beaked whale</b>								
1	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.00180	(0.92)	0.00180	(0.92)	0.00180	(0.92)	0.00180	(0.92)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
7	0.00180	(1.37)	0.00180	(1.37)	0.00180	(1.37)	0.00180	(1.37)
8	0.00180	(0.97)	0.00180	(0.97)	0.00180	(0.97)	0.00180	(0.97)
All strata	0.00159	(>0.71)	0.00159	(>0.71)	0.00159	(>0.71)	0.00159	(>0.71)
<b>Other beaked whales</b>								
1	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.00697	(0.92)	0.00697	(0.92)	0.00697	(0.92)	0.00697	(0.92)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
7	0.00697	(1.37)	0.00697	(1.37)	0.00697	(1.37)	0.00697	(1.37)
8	0.00697	(0.97)	0.00697	(0.97)	0.00697	(0.97)	0.00697	(0.97)
All strata	0.00614	(>0.71)	0.00614	(>0.71)	0.00614	(>0.71)	0.00614	(>0.71)
<b>Humpback whale</b>								
1	<b>0.00000</b>	(>1.00)	<b>0.00475</b>	(0.83)	0.02334	(0.94)	<b>0.00000</b>	(>1.00)
5	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00640	(0.83)	0.00000	(>1.00)
7	0.00000	(>1.00)	<b>0.01257</b>	(0.63)	0.00904	(0.94)	<b>0.00137</b>	(0.94)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00062	(0.83)	0.00000	(>1.00)
All strata	<b>0.00000</b>	(>1.00)	<b>0.00135</b>	(>0.59)	0.00236	(>0.48)	<b>0.00014</b>	(>0.94)
<b>Gray whale</b>								
1	<b>0.42056</b>	(0.77)	<b>0.03409</b>	(0.63)	0.00000	(>1.00)	<b>0.49440</b>	(0.26)
5	0.03376	(0.72)	0.00000	(>1.00)	0.00000	(>1.00)	0.00997	(0.94)
6 (2, 3, 4, 6)	0.10326	(0.68)	0.00000	(>1.00)	0.00000	(>1.00)	0.06765	(0.94)
7	<b>0.00904</b>	(1.33)	<b>0.00000</b>	(>1.00)	0.00000	(>1.00)	<b>0.00831</b>	(0.83)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
All strata	<b>0.02515</b>	(>0.41)	<b>0.00065</b>	(>0.63)	0.00000	(>1.00)	<b>0.01874</b>	(>0.37)
<b>Blue whale</b>								
1	<b>0.00000</b>	(>1.00)	<b>0.01988</b>	(>1.00)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)
5	0.00000	(>1.00)	0.01426	(0.63)	0.02650	(0.60)	0.00000	(>1.00)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.01453	(0.72)	0.00000	(>1.00)
7	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)	0.05140	(0.65)	<b>0.00000</b>	(>1.00)
8	0.00471	(0.94)	0.01710	(0.63)	0.00997	(0.37)	0.00000	(>1.00)
All strata	<b>0.00285</b>	(>0.94)	<b>0.01325</b>	(>0.51)	0.01729	(>0.29)	<b>0.00000</b>	(>1.00)
<b>Fin whale</b>								
1	<b>0.00000</b>	(>1.00)	<b>0.00647</b>	(0.94)	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)
5	0.01591	(0.72)	0.01035	(0.72)	0.02342	(0.65)	0.01207	(0.76)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.02731	(0.94)
7	0.00000	(>1.00)	<b>0.00000</b>	(>1.00)	0.09709	(0.54)	<b>0.00429</b>	(0.94)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00332	(0.54)	0.00000	(>1.00)
All strata	<b>0.00281</b>	(>0.72)	<b>0.00195</b>	(>0.68)	0.01584	(>0.38)	<b>0.00528</b>	(>0.58)



**Table 3.7-4. Estimated densities of marine mammals (number/km<sup>2</sup>) and coefficients of variation (in parenthesis) of each species present in the Point Mugu Sea Range during each oceanographic season (continued)**

Stratum	February-April		May-July		August-October		November-January	
	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV
<b>Sei whale</b>								
1	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
6 (2, 3, 4, 6)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
7	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00016	(0.94)	0.00000	(>1.00)
All strata	0.00000	(>1.00)	0.00000	(>1.00)	0.00010	(>0.94)	0.00000	(>1.00)
<b>Minke whale</b>								
1	0.00192	(1.31)	0.00192	(1.31)	0.00192	(1.31)	0.00192	(1.31)
5	0.00192	(0.80)	0.00192	(0.80)	0.00192	(0.80)	0.00192	(0.80)
6 (2, 3, 4, 6)	0.00192	(1.03)	0.00192	(1.03)	0.00192	(1.03)	0.00192	(1.03)
7	0.00192	(1.25)	0.00192	(1.25)	0.00192	(1.25)	0.00192	(1.25)
8	0.00192	(0.85)	0.00192	(0.85)	0.00192	(0.85)	0.00192	(0.85)
All strata	0.00192	(0.68)	0.00192	(0.68)	0.00192	(0.68)	0.00192	(0.68)
<b>Harbor seal</b>								
1	0.16218	(0.65)	0.02184	(0.94)	0.02336	(0.94)	0.05307	(0.94)
2	0.06432	(0.94)	0.27560	(0.83)	0.00000	(>1.00)	0.41884	(0.72)
3	0.00000	(>1.00)	0.38638	(0.94)	0.00000	(>1.00)	0.00000	(>1.00)
4	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.00000	(>1.00)	0.05061	(0.94)	0.03769	(0.94)	0.00000	(>1.00)
6	0.13117	(0.94)	0.29600	(0.76)	0.05748	(0.94)	0.39558	(0.72)
7	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
8	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
All strata	0.00981	(>0.65)	0.03067	(>0.49)	0.00994	(>0.69)	0.02214	(>0.64)
<b>Northern elephant seal</b>								
1	0.00000	(>1.00)	0.15205	(0.83)	0.15493	(0.68)	0.48638	(0.68)
2	0.31211	(0.94)	0.00000	(>1.00)	0.34894	(0.83)	0.00000	(>1.00)
3	1.71193	(0.83)	0.00000	(>1.00)	0.57295	(0.94)	0.64088	(0.94)
4	1.56227	(0.94)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
5	0.58278	(0.76)	0.00000	(>1.00)	0.07437	(0.65)	0.18958	(0.83)
6	0.47188	(0.83)	0.80635	(0.76)	0.09452	(0.94)	0.00000	(>1.00)
7	0.18144	(0.72)	0.27061	(0.65)	0.07224	(0.65)	0.09540	(0.83)
8	0.10827	(0.83)	0.00000	(>1.00)	0.06903	(0.53)	0.09939	(0.83)
All strata	0.28551	(>0.39)	0.06966	(>0.50)	0.07946	(>0.33)	0.12179	(>0.48)
<b>California sea lion</b>								
1	1.20327	(0.35)	4.62960	(0.27)	1.50389	(0.25)	2.60351	(0.28)
2	2.12053	(0.43)	13.73869	(0.29)	4.61864	(0.28)	2.70838	(0.36)
3	1.96798	(0.65)	6.31971	(0.57)	5.43780	(0.42)	5.63699	(0.43)
4	2.74751	(0.72)	4.71374	(0.65)	5.88287	(0.42)	5.29362	(0.50)
5	0.13008	(0.83)	3.24533	(0.38)	1.16072	(0.32)	1.54458	(0.36)
6	1.95824	(0.47)	11.29354	(0.31)	3.58401	(0.19)	4.14797	(0.29)
7	0.33133	(0.47)	1.60679	(0.34)	0.70401	(0.31)	0.96698	(0.35)
8	0.30682	(0.53)	0.13171	(0.83)	0.01794	(0.60)	0.90397	(0.43)
All strata	0.48503	(0.27)	1.75356	(0.18)	0.77511	(0.15)	1.43078	(0.20)

**Table 3.7-4. Estimated densities of marine mammals (number/km<sup>2</sup>) and coefficients of variation (in parenthesis) of each species present in the Point Mugu Sea Range during each oceanographic season (continued)**

Stratum	February-April		May-July		August-October		November-January	
	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV	No/km <sup>2</sup>	CV
<b>Northern fur seal</b>								
1	0.07088	(0.68)	0.02017	(0.83)	0.03095	(0.65)	0.01491	(0.94)
2	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.02412	(0.94)
3	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)
4	0.00000	(>1.00)	0.00000	(>1.00)	0.00000	(>1.00)	0.13748	(0.94)
5	0.32509	(0.57)	0.01583	(0.94)	0.00000	(>1.00)	0.14446	(0.57)
6	0.14828	(0.76)	0.00000	(>1.00)	0.03043	(0.83)	0.00000	(>1.00)
7	0.48312	(0.28)	0.12967	(0.43)	0.11028	(0.39)	0.05241	(0.63)
8	0.60237	(0.28)	0.04121	(0.72)	0.02360	(0.50)	0.34756	(0.41)
All strata	0.47875	(>0.23)	0.04106	(>0.46)	0.02738	(>0.31)	0.24574	(>0.36)

\* CV (coefficient of variation) is a measure of a number's variability. The larger the CV, the higher the variability.

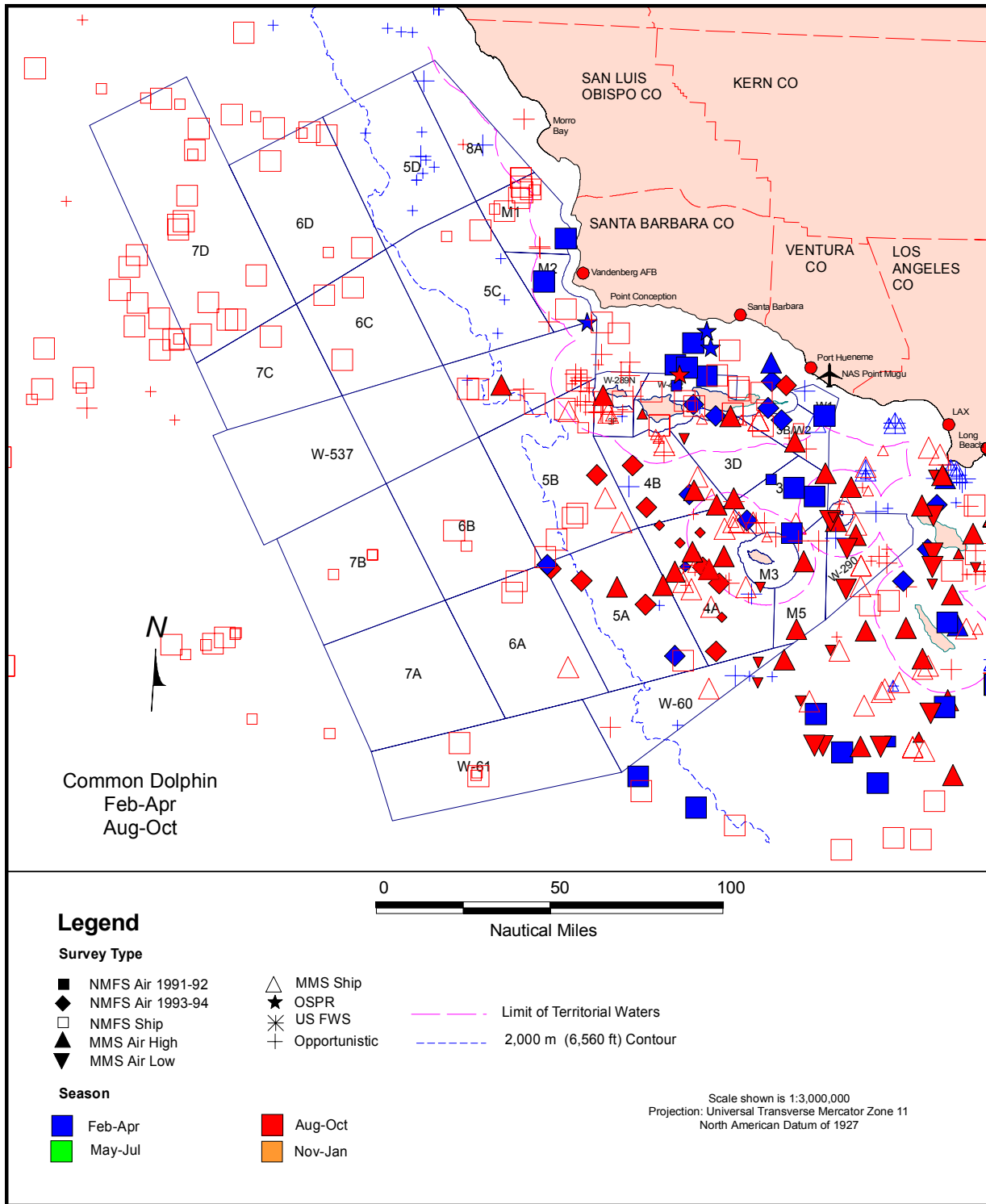
found within 50 NM (90 km) of shore, and the short-beaked common dolphin, found to greater than 300 NM (560 km) from shore. Most studies have not distinguished the two species so they are treated together here. The common dolphin is the most common cetacean in the Point Mugu Sea Range but it exhibits large seasonal changes in distribution and abundance, probably related to seasonal changes in water temperatures. During autumn to spring, common dolphins are most common in the southeastern part of the Sea Range, and south and east of there (Figure 3.7-2). During summer, their numbers decrease in the Sea Range as they disperse northward (Figure 3.7-2). In autumn to spring, an estimated 220,000 to 240,000 common dolphins are found in the Sea Range.

During summer, about 150,000 common dolphins are scattered throughout the Sea Range. Within the Sea Range, roughly equal proportions of common dolphins are found in Territorial and non-Territorial Waters during winter to summer (see Table 3.7-3). During autumn, only about 38 percent are found in Territorial Waters. The mean group size within the Sea Range is 141 individuals, but group sizes vary with species, season, and geographic location. The short-beaked common dolphin feeds primarily on squid and Pacific hake and occasionally northern anchovy. The long-beaked common dolphin feeds equally on hake and anchovy.

#### Northern Right Whale Dolphin, *Lissodelphis borealis*

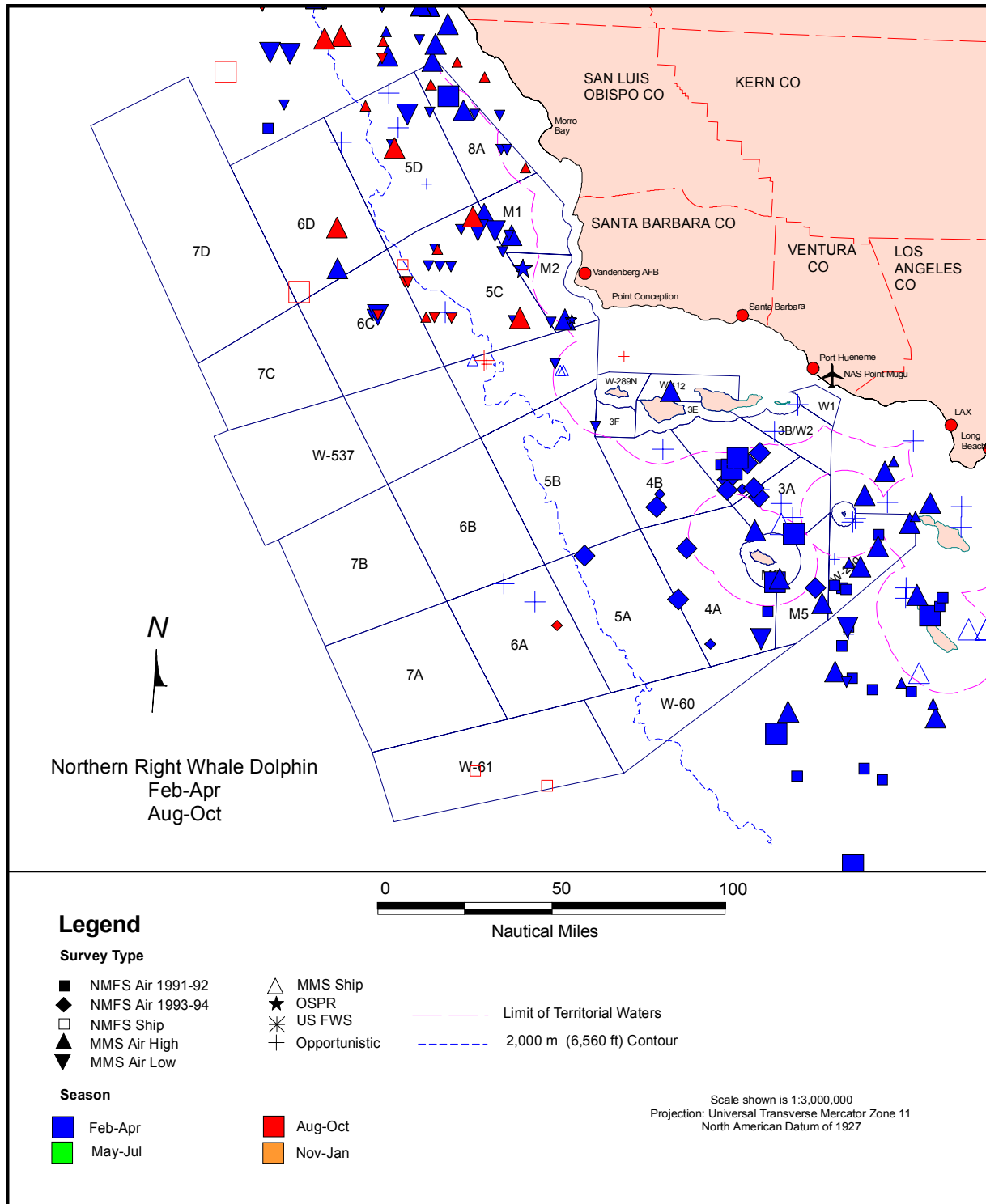
The northern right whale dolphin has not been assigned any special status and the trends in population size are unknown. It is abundant throughout the inner half of the Sea Range during winter and spring when approximately 87,000 and 77,000 animals, respectively, may be present (Figure 3.7-3). During autumn, smaller numbers are present in the same area; many animals have moved north of the Sea Range. During summer, only 4,000 animals are present in the Sea Range, most in the northern part (Figure 3.7-3). During all times of year the majority (greater than 90 percent) of northern right whale dolphins are found in non-Territorial Waters. Mean group size within the Point Mugu Sea Range was 89 individuals (214 groups) but groups of up to 2,500 animals have been seen there. Northern right whale dolphins feed on squid, lanternfish, and other mesopelagic fish at depths less than 985 feet (300 m).





**Figure 3.7-2**  
**Sightings of common dolphins during the February-April and August-October 1975-96 surveys summarized.**

Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of 1-20 animals vs. 21 or more animals, respectively.



**Figure 3.7-3**  
**Sightings of northern right whale dolphins during the February-April and August-October 1975-96 surveys summarized.**

Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of 1-10 vs. 11 or more animals, respectively.



Short-finned Pilot Whale, *Globicephala macrorhynchus*

The California population of the short-finned pilot whale is considered a strategic stock under the MMPA (Barlow et al. 1997). Its distribution changed following the El Niño event of 1982-1983 and it has only recently started to return to its former range in California. It is found primarily south and east of the Sea Range. During most years at most a few tens of animals might be found in the Sea Range, primarily during autumn and winter. However, if oceanographic conditions are suitable, large numbers and a large fraction of the California population might be found in the Sea Range. In former years, short-finned pilot whales occurred in groups averaging about 20 animals, and they fed primarily on squid.

Cuvier's Beaked Whale, *Ziphius cavirostris*

Cuvier's beaked whale does not have a special status. Beaked whales are distributed throughout offshore waters of the Sea Range throughout the year (Figure 3.7-4). About 2,044 Cuvier's beaked whales may occur on the Sea Range (see Table 3.7-3). This species is found in small groups averaging 2.3 individuals and feeds on squid and fish found in deep water in offshore areas.

Sperm Whale, *Physeter macrocephalus*

The sperm whale is listed as endangered and depleted, and the stock that occurs in the Sea Range is considered to be a strategic stock (Barlow et al. 1997). It is found throughout deep offshore waters warmer than 59° F (15° C) and is present throughout offshore waters of the Sea Range in all seasons except possibly spring (Figure 3.7-5). The sperm whale is probably present in largest numbers during autumn and winter when about 3,744 to 5,013 may be present in the Sea Range (see Table 3.7-3). Almost all sperm whales are expected to be found in non-Territorial Waters. This species is generally found in small groups (with a mean number of 5.6 individuals). Sperm whales dive to great depths (to 9,840 feet [3,000 m]) and feed on medium to large cephalopods.

Other Odontocetes

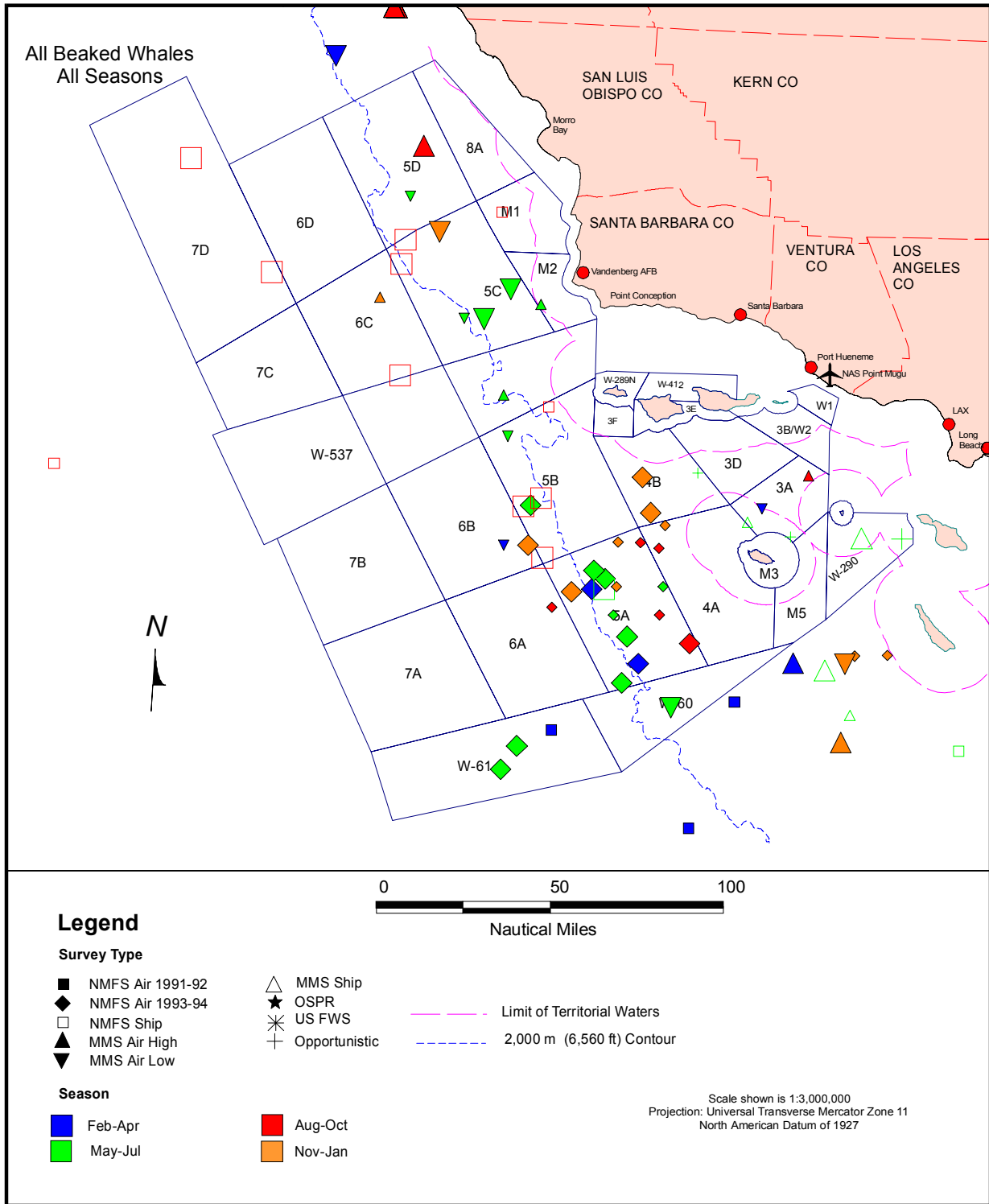
Many other species of odontocetes have been reported as occasional or rare visitors to the SCB. None of these additional species are listed as endangered or depleted and none of the stocks that occur in the Sea Range are considered to be strategic stocks (Barlow et al. 1997). Although none to a few animals of these species are expected to be found within the Sea Range, any animals that do occur are likely to represent a significant fraction (possibly all) of the California population. For additional details, refer to the "Marine Mammal Technical Report" (NAWCWPNS Point Mugu 1998e).

Striped Dolphin, *Stenella coeruleoalba*

Striped dolphins are abundant in eastern tropical Pacific waters where they form large mixed schools with spinner and spotted dolphins. Approximately 7,887 striped dolphins are found in the Sea Range during summer. Because the striped dolphin is a pelagic species and there has not been adequate survey coverage in offshore waters during seasons other than summer, its abundance in the outer Sea Range is unknown during autumn to spring. All of the estimated 7,887 striped dolphins occurring in the Sea Range during summer are found in non-Territorial Waters.

Spinner Dolphin, *Stenella longirostris*

Spinner dolphins are common in nearshore areas off Central America but no spinner dolphins were identified in or near the study area during the recent studies from which sightings were mapped for this

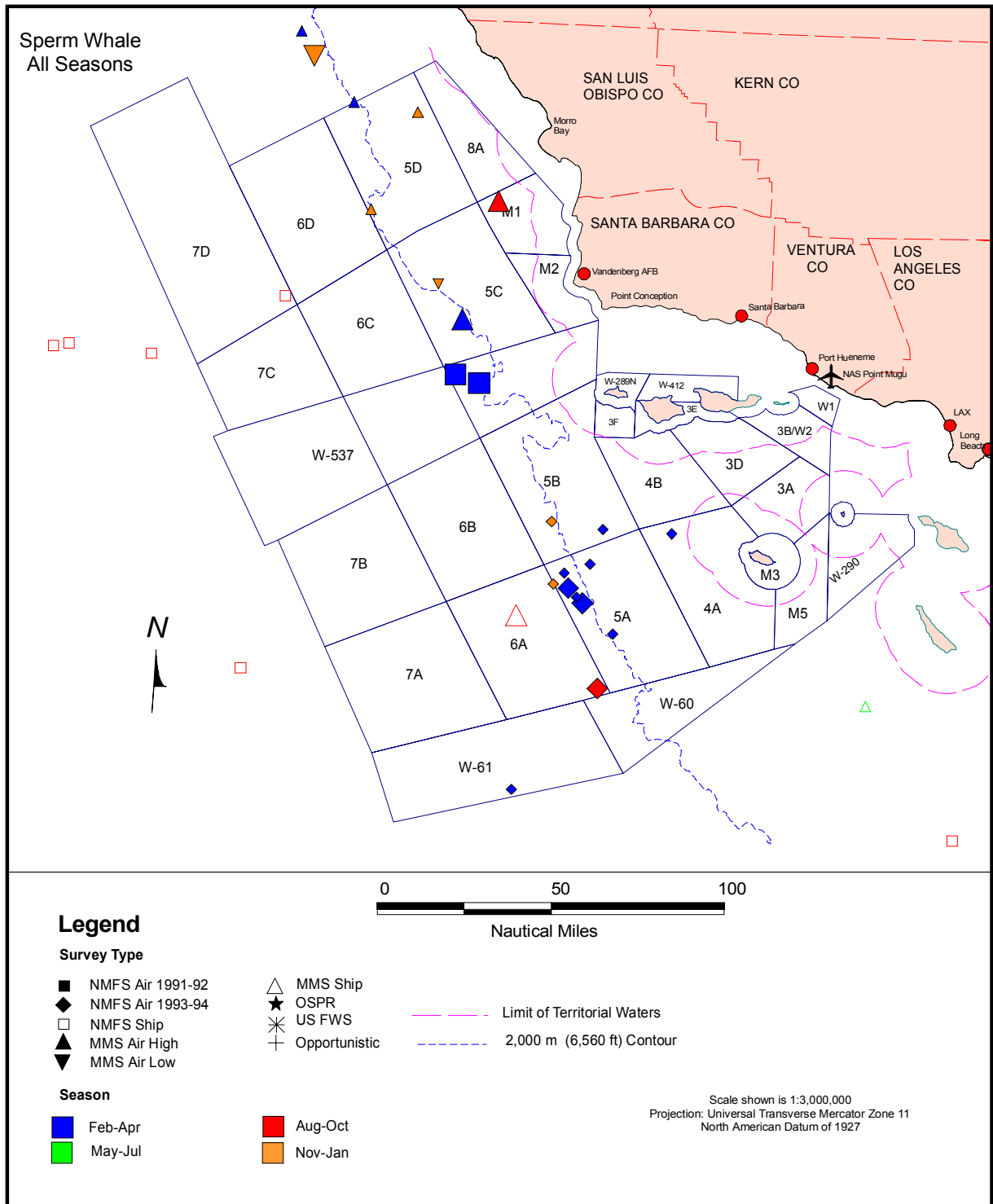


**Figure 3.7-4**

**Sightings of all beaked whales during the 1975-96 surveys summarized.**

Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively. Beaked whales are especially difficult to survey because they are below the surface most of the time.





**Figure 3.7-5**

**Sightings of sperm whales during the 1975-96 surveys summarized.**

**Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of 1-5 vs. 6 or more animals, respectively. Sperm whales are especially difficult to survey because they are below the surface most of the time.**

analysis. Thus, no or at most a few spinner dolphins are expected to be present in the Sea Range. If they are present, they are likely to be in Territorial Waters (see [Table 3.7-3](#)).

*Spotted Dolphin, Stenella attenuata*

Spotted dolphins are typically found in tropical and temperate pelagic waters. No sightings of spotted dolphins have been made at sea in California waters, but a stranding has been reported approximately 25 NM (46 km) north and east of the Sea Range. No, or at most a few, spotted dolphins are likely to occur in the Sea Range.

*Rough-toothed Dolphin, Steno bredanensis*

Rough-toothed dolphins are typically found in tropical and warm temperate waters. This species has not been positively identified alive in coastal temperate waters, but a few specimens have been collected from central and northern California. None to a few rough-toothed dolphins might be present in the Sea Range during summer. They are most likely to be found in Territorial Waters.

*Killer Whale, Orcinus orca*

Killer whales are sighted occasionally in California waters, but no resident populations have been identified (Forney et al. 1995). Forney et al. (1995) estimated that 747 (CV=0.71) killer whales occur in waters off California. Approximately 361 killer whales are estimated to be present in the Sea Range throughout the year. Approximately 12 percent (43) of them are in Territorial Waters and 88 percent (318) are in non-Territorial Waters ([Table 3.7-3](#)).

*False Killer Whale, Pseudorca crassidens*

False killer whales occur predominantly in tropical to subtropical pelagic waters and have rarely been reported north of Baja California. This species is a sporadic visitor in California waters and records of strandings and sightings along the California coast are rare. None to a few false killer whales might be present in the Sea Range during summer, primarily in non-Territorial Waters.

*Baird's Beaked Whale, Berardius bairdii*

Baird's beaked whales are infrequently encountered along the continental slope and throughout deep waters of the eastern North Pacific. Little is known about their seasonal movements or distribution, but it is suspected that they move into continental slope waters during the late spring through early autumn period and move farther offshore during other periods (Barlow et al. 1997). The best estimate of the number of Baird's beaked whales off California is 380 (CV=0.52, Barlow and Gerrodette 1996). Approximately 148 Baird's beaked whales are present in the Sea Range, with greater than 148 probably being present from late spring to early autumn and fewer than 148 present during the rest of the year. All Baird's beaked whales are expected to be found in non-Territorial Waters.

*Mesoplodont Beaked Whales, Mesoplodon spp.*

Mesoplodont beaked whales (including Hubbs', Hector's, ginkgo-toothed, Blainville's, and Stejneger's beaked whales as a group) are distributed throughout deep waters and along the continental slopes of the eastern North Pacific. These five species are known to occur near or in the Point Mugu Sea Range. All beaked whales are difficult to identify so most beaked whale sightings are not identified to the species level. None of the five species is listed as endangered under the ESA or depleted or a strategic stock



under the MMPA. Until recently, the California/Oregon/Washington “population” of this species group has collectively been considered to be a strategic stock (Barlow et al. 1997). However, due to new information on population size, its status was recently changed to “non-strategic” (NMFS 1998; Barlow et al. 1998). The available data about occurrence of particular mesoplodont species in and near the Sea Range has come mostly from stranding records. The paucity of sightings and strandings precludes any determination of spatial or seasonal patterns in mesoplodont beaked whale distribution or abundance. Barlow and Gerrodette (1996) estimated that 2,106 (CV=0.79) mesoplodont beaked whales were present in offshore waters within 300 NM (556 km) of the California coast. Approximately 573 mesoplodont beaked whales are present in the Sea Range throughout the year, primarily in non-Territorial Waters (see Table 3.7-3).

#### *Pygmy Sperm Whale, Kogia breviceps*

The pygmy sperm whale normally remains seaward of the continental shelf. Only one pygmy sperm whale was sighted in the Sea Range during studies since 1990. The best estimate of the California population size for pygmy sperm whales is 3,145 (CV=0.45, Barlow and Sexton 1996). A few pygmy sperm whales are probably present in autumn in non-Territorial Waters in the Sea Range. Pygmy sperm whales are found singly or in groups of up to 6 individuals. Their diet consists of squid, benthic fish, and crabs, suggesting that they dive to considerable depths when feeding.

#### *Dwarf Sperm Whale, Kogia simus*

The dwarf sperm whale may inhabit waters over or near the edge of the continental shelf or the open sea, primarily south of the Sea Range. Thus, occasional dwarf sperm whales may be found in the Sea Range during summer and early autumn, when water temperatures are high, but they are unlikely to be present at other times of year. There is no good estimate of the California population size for the dwarf sperm whale, but Barlow and Gerrodette estimated that there are about 891 (CV=2.04) pygmy and/or dwarf sperm whales (*Kogia* sp.) in California waters. This species is found singly or in small groups of up to about 6 animals. Their diet consists of squid, benthic fish, and crabs.

### 3.7.2.2 Mysticetes (Baleen Whales)

All species of baleen whales that occur in the Sea Range have extensive ranges in the North Pacific, extending from high-latitude feeding grounds in the summer to subtropical calving grounds in the winter (Bonnell and Dailey 1993).

Blue, fin, and humpback whales are present in southern California offshore waters during the summer and autumn months (Heyning and Lewis 1990). Minke whales appear to be present year-round off the Channel Islands (Rice 1974; Leatherwood et al. 1987). In the autumn and winter, migrating gray whales are abundant both close to shore and in offshore migration corridors along and between the Channel Islands. Northern right, sei, and Bryde’s whales are uncommon or rare in the area.

#### *Northern Right Whale, Eubalaena glacialis*

The northern right whale is federally listed as endangered under the ESA and the North Pacific stock is considered a strategic stock under the MMPA. In the northeastern Pacific its numbers may have been reduced beyond the point of recovery. No live northern right whales have been seen in the Sea Range proper during the last 100 years. (The few recent sightings near the Sea Range are listed in the “Marine Mammal Technical Report” [NAWCWPNS Point Mugu 1998e]). The scarcity of sightings and the very

low population numbers indicate that it is very unlikely that right whales will be encountered in the Sea Range.

#### Gray Whale, *Eschrichtius robustus*

The gray whale no longer has a special status since its recent removal from the “endangered” list. During its autumn migration southward and its winter migration northward, most of the approximately 23,100 gray whales in the eastern North Pacific stock pass through or inshore of the Point Mugu Sea Range. The southbound migration begins in late December, peaks in early-to-mid January and extends through February. The northbound migration begins in mid-February, peaks in March and extends through May. North of Point Conception, the migration corridor is largely inshore of the Sea Range (Figure 3.7-6). In the SCB, gray whales follow three general routes through or near the Sea Range: 1) a nearshore route follows the coast and is primarily east of the Sea Range; 2) an inshore route goes from Point Conception to the Channel Islands, east to Santa Cruz Island, southeast to Santa Barbara Island and thence east and southeast to Santa Catalina and San Clemente islands; and 3) an offshore route goes from Point Conception to the western Channel Islands, southeast to San Nicolas Island, and southeast from there. (For a map of migration corridors in the SCB, see Figure 3.7-15 later in this chapter.) Survey data suggest that about 86 percent of gray whales traverse Territorial Waters within the Sea Range during their southbound migration in autumn and that 73 percent traverse Territorial Waters during their northbound migration in winter. Gray whales do not spend much time feeding in the Sea Range and typically pass through it in a few days or less. Northbound mothers and calves travel more slowly than other whales and tend to be seen later in the season than other northbound gray whales.

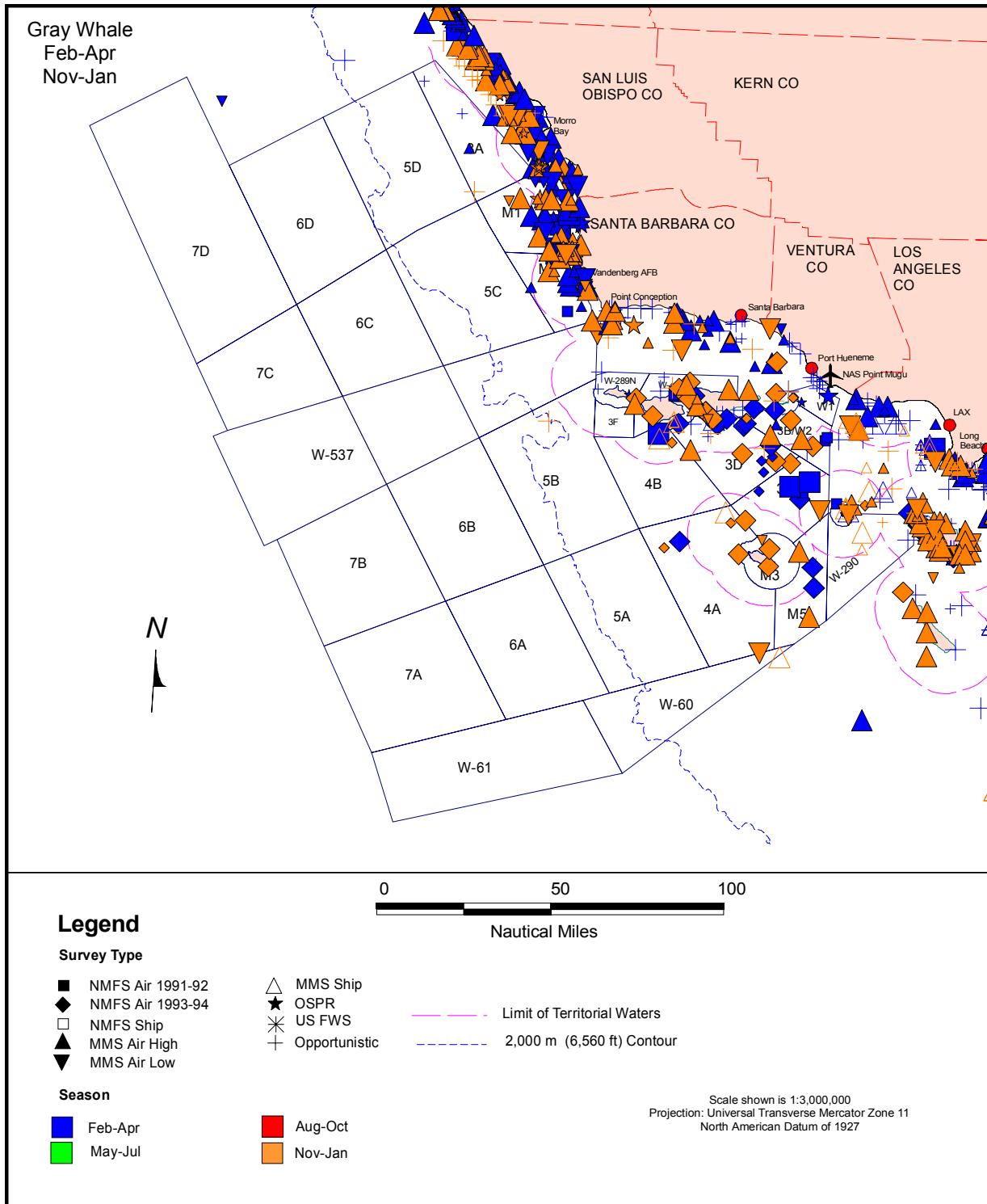
#### Humpback Whale, *Megaptera novaeangliae*

The humpback whale is listed as endangered and depleted and the stock that occurs in the Sea Range is designated as a strategic stock (Barlow et al. 1997). The population that occurs in the Sea Range winters as far south as Costa Rica and summers as far north as southern British Columbia, but most individuals of this stock are found off Mexico during winter and off central and northern California during summer. There are about 600 animals in this population and the stock size appears to be increasing slowly. Most of these whales pass through the Sea Range during their north-south migration to and from feeding areas farther north but only a fraction of the population is present in the Sea Range at one time. Feeding concentrations totaling approximately 220 humpback whales are found in the Sea Range during summer. Almost half of the feeding whales are found in Territorial Waters (Figure 3.7-7; see Table 3.7-3). Humpback whales are rarely found in the Sea Range during winter and only a fraction of the population is present in the Sea Range during the spring and autumn migration periods. During the spring and autumn periods most whales are found in non-Territorial Waters. Humpbacks are found singly or in small groups (average 2.9 individuals) and they feed primarily on krill.

#### Blue Whale, *Balaenoptera musculus*

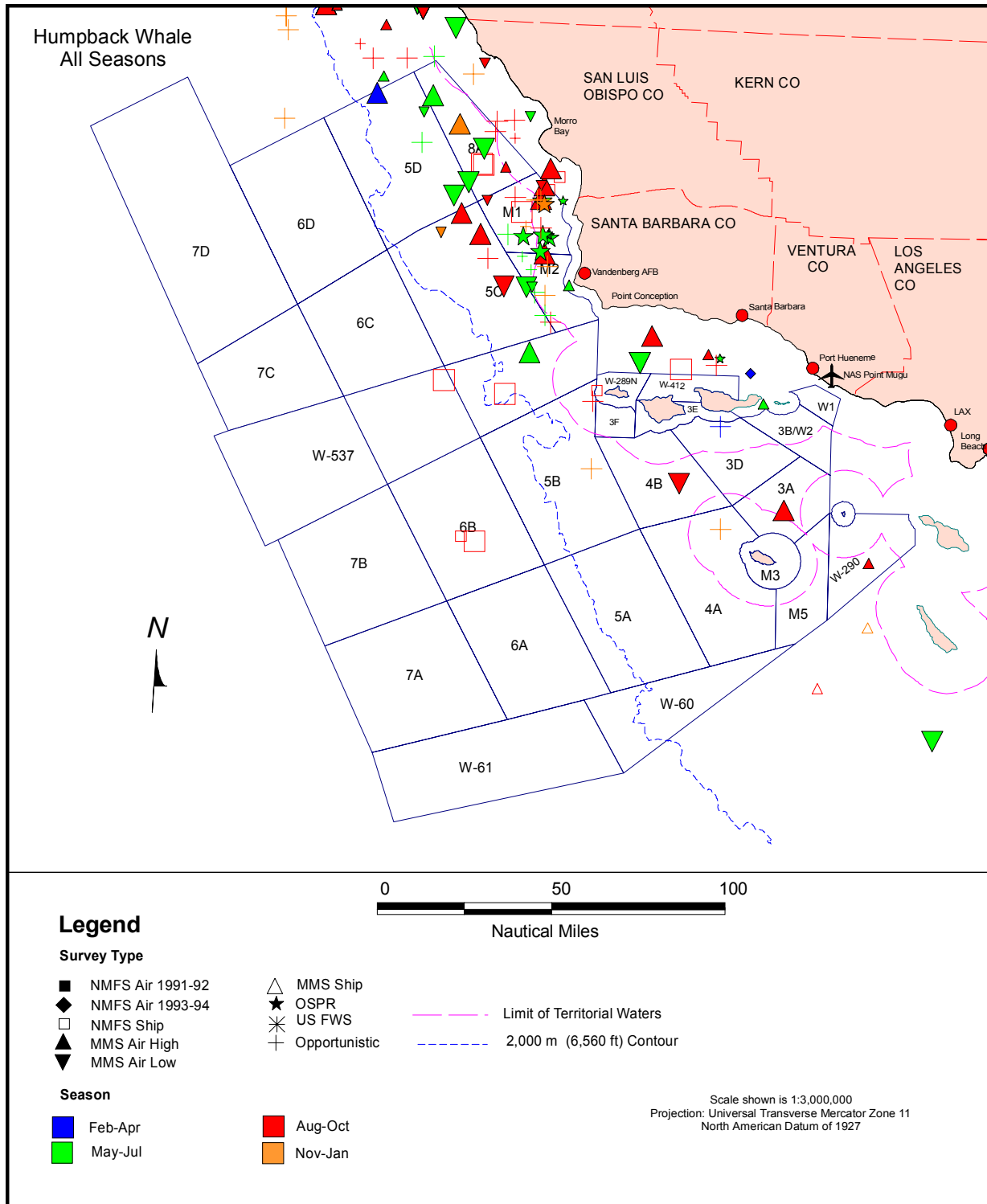
The blue whale is listed as endangered and depleted and the stock that occurs in the Sea Range is designated as a strategic stock (Barlow et al. 1997). The population that occurs in the Point Mugu Sea Range winters off Central America and summers as far north as northern California. This species is common in offshore areas of the Sea Range during late spring and summer (Figure 3.7-8). There are about 1,800 animals in this population and it appears to be increasing, although some of the apparent increase is likely due to changes in distribution rather than population increase. Most of this population summers in and north of the Sea Range. Feeding concentrations of up to 100 blue whales are found near the Sea Range during summer in some years. Waters west of San Nicolas Island are often used for feeding (Figure 3.7-8). Blue whales are rarely found in the Sea Range during autumn and early winter





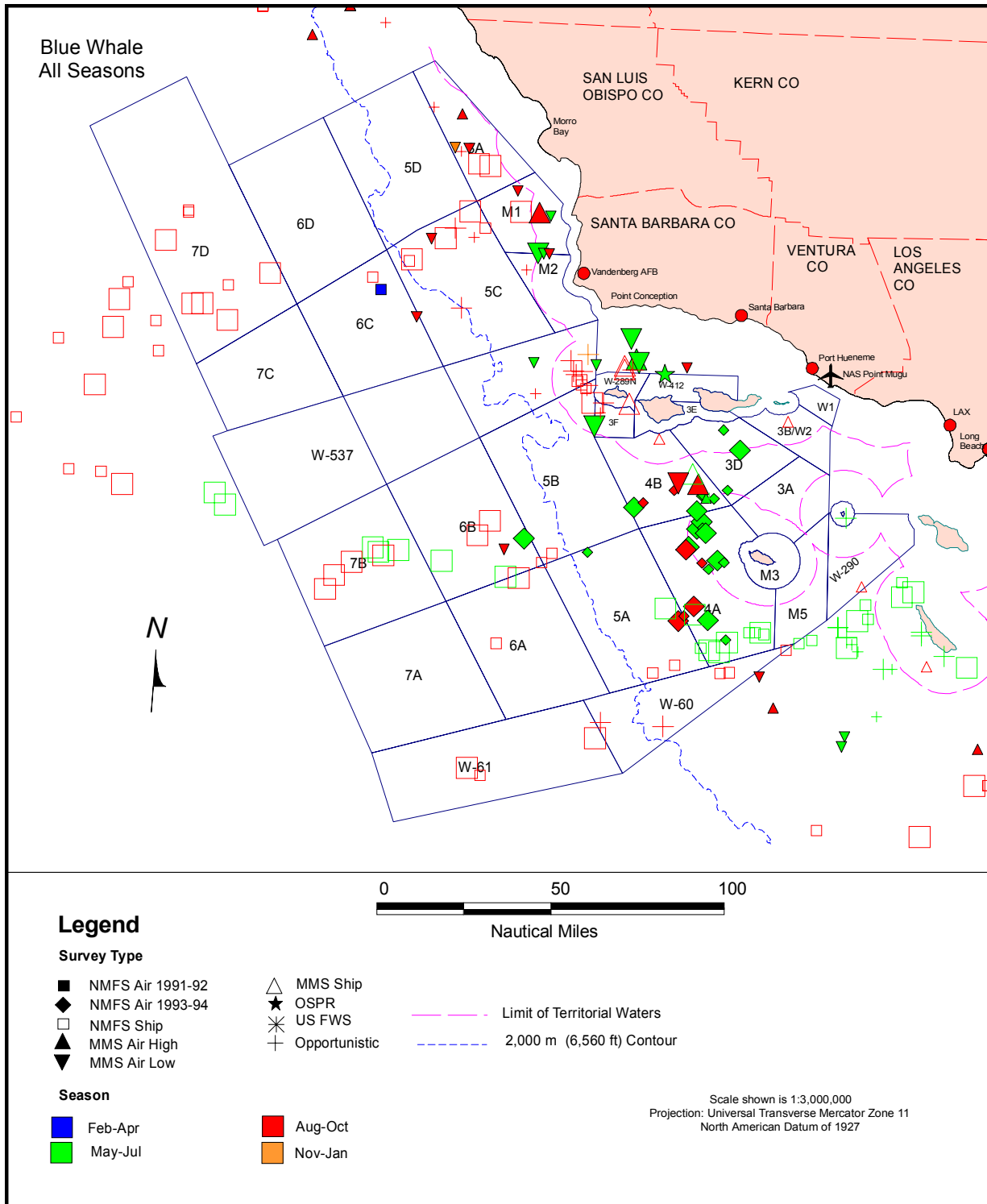
**Figure 3.7-6**  
**Sightings of gray whales during the February-April and**  
**November-January 1975-96 surveys summarized.**

Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively.



**Figure 3.7-7**  
**Sightings of humpback whales during the 1975-96 surveys summarized.**  
 Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively.





**Figure 3.7-8**

**Sightings of blue whales during the 1975-96 surveys summarized.**

Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively.

and only very small numbers are found there during late winter and early spring (see [Table 3.7-3](#)). During summer there are approximately 1,600 blue whales in the Sea Range; only 135 (8 percent) of them are found in Territorial Waters. Blue whales usually are found singly or in small groups (average 2.5 individuals). They feed in deep offshore waters primarily on euphausiids, often near the surface (less than 52 feet [16 m]) but sometimes to considerably deeper depths.

#### Fin Whale, *Balaenoptera physalus*

The fin whale is listed as endangered and depleted, and the stock that occurs in the Sea Range is designated as a strategic stock (Barlow et al. 1997). The population that occurs in the Point Mugu Sea Range winters offshore of Mexico and southern California and summers in the Sea Range and possibly as far north as Washington. This species is one of the most commonly encountered large cetaceans in the Sea Range. During summer, an estimated 1,477 fin whales (probably overestimated) are present in the continental slope and offshore areas of the Sea Range in non-Territorial Waters ([Figure 3.7-9](#)). During summer, the highest concentrations tend to be found in offshore waters north of Point Conception. During other times of year, an estimated 182-492 fin whales are present, primarily in the southern part of the Sea Range and primarily in non-Territorial Waters (see [Table 3.7-3](#)). This population appears to be increasing. Fin whales are generally found in small groups (average 3.5 individuals), but groups of 130 and 81 animals have been found in the Sea Range. They feed on euphausiids, copepods, squid, and small schooling fish.

#### Sei Whale, *Balaenoptera borealis*

The sei whale is listed as endangered and depleted, and the stock that occurs in the Sea Range is designated as a strategic stock (Barlow et al. 1997). This species is rare in the continental slope and offshore areas of the Sea Range during spring and summer and is not seen during other times of year. There is no estimate of the size of the stock that inhabits California waters but the number is presumed to be small. None to a few tens of sei whales may occur in the Sea Range, primarily during spring and summer and primarily in offshore waters. Sei whales are generally found in small groups averaging 2 to 5 individuals. They feed on copepods, euphausiids, amphipods, squid, and small schooling fish.

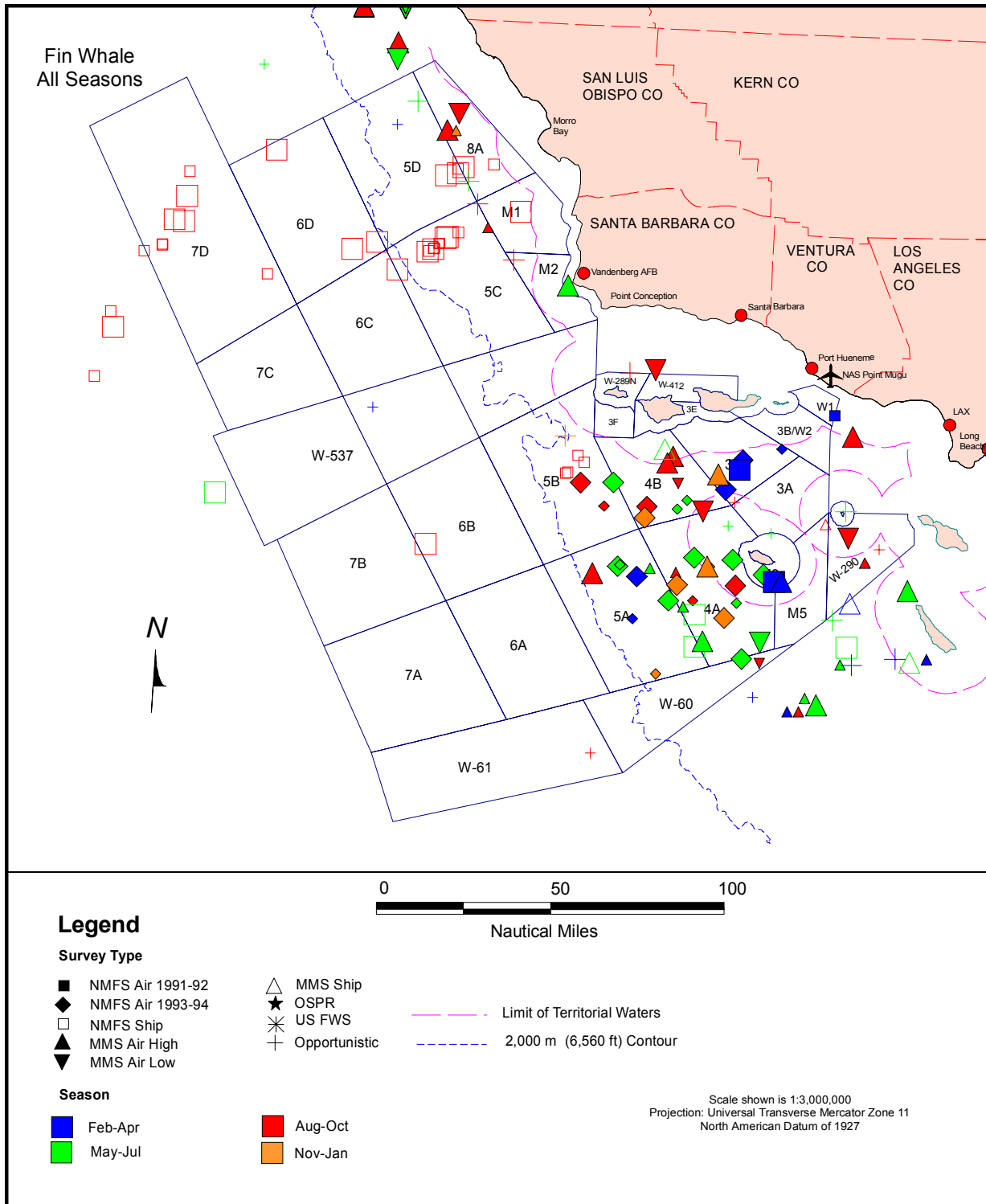
#### Bryde's Whale, *Balaenoptera edeni*

Bryde's whale is not federally listed as endangered under the ESA and is not considered depleted or a strategic stock under the MMPA. This species is rarely seen in or near the Sea Range. The best estimate of the California population size is 24 (CV=2.0, Barlow et al. 1997). At any given time, the number on the Sea Range could vary from none to the entire California population. Bryde's whales are more likely to be found in non-Territorial Waters but are occasionally sighted in nearshore areas.

#### Minke Whale, *Balaenoptera acutorostrata*

Minke whales found in the Sea Range are not federally listed as endangered under the ESA or depleted or a strategic stock under the MMPA. Until recently, the stock that inhabits offshore waters from Baja California to Washington has been considered a strategic stock (Barlow et al. 1997); however, its status was recently changed to "non-strategic" (NMFS 1998; Barlow et al. 1998). Their seasonal distributions and movements are not well known because they are inconspicuous as compared with other baleen whales. Available data suggest that minke whales move into nearshore and continental slope waters of the southeastern part of the Sea Range during late spring and leave in late summer (for additional details, refer to the "Marine Mammal Technical Report" [NAWCWPNS Point Mugu 1998e]). During the





**Figure 3.7-9**

**Sightings of fin whales during the 1975-96 surveys summarized.**

Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively.

remainder of the year they may disperse into offshore waters and possibly south of the Sea Range. During summer, many of the minke whales that inhabit offshore waters of California may be found in the southeastern part of the Sea Range, particularly south of and offshore of the Channel Islands. About 180 minke whales are present in the Sea Range throughout the year. Minke whales in the Sea Range usually occur in groups of 1 to 3 individuals (mean group size 1.4), and probably feed on euphausiids and small shoaling fish.

### 3.7.2.3 Pinnipeds

Four pinniped species (harbor seal, northern elephant seal, California sea lion, and northern fur seal) are found regularly in the Point Mugu Sea Range and two additional species, Steller sea lion and Guadalupe fur seal, are seen occasionally. Of the four regularly occurring species, only one species, the California sea lion, is common throughout offshore waters of the Sea Range throughout the year. Large numbers of northern elephant seals pass through offshore waters four times per year as they travel to and from breeding, pupping, and molting areas on islands within the Sea Range. Large numbers of northern fur seals may be found in offshore waters during the winter and spring when animals from northern populations may feed there. During the rest of the year, moderate numbers of northern fur seals are found in offshore waters of the Sea Range. They include only the animals that breed and raise their young on San Miguel Island. Moderate numbers of harbor seals are found hauled out on land and in coastal waters of the Sea Range, but because of their preference for shallow coastal waters, few are found in offshore areas.

This section emphasizes the distribution and activities of pinnipeds while they are in offshore waters. However, there are relatively few data on pinniped distribution and abundance while at sea. The details of their occurrence and numbers while ashore are given in later sections on Point Mugu ([Section 3.7.3.3](#)), San Nicolas Island ([Section 3.7.4.3](#)), and the other Channel Islands ([Section 3.7.5.3](#)). Many additional details, literature citations, maps, and graphs of numerical trends are given in the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e).

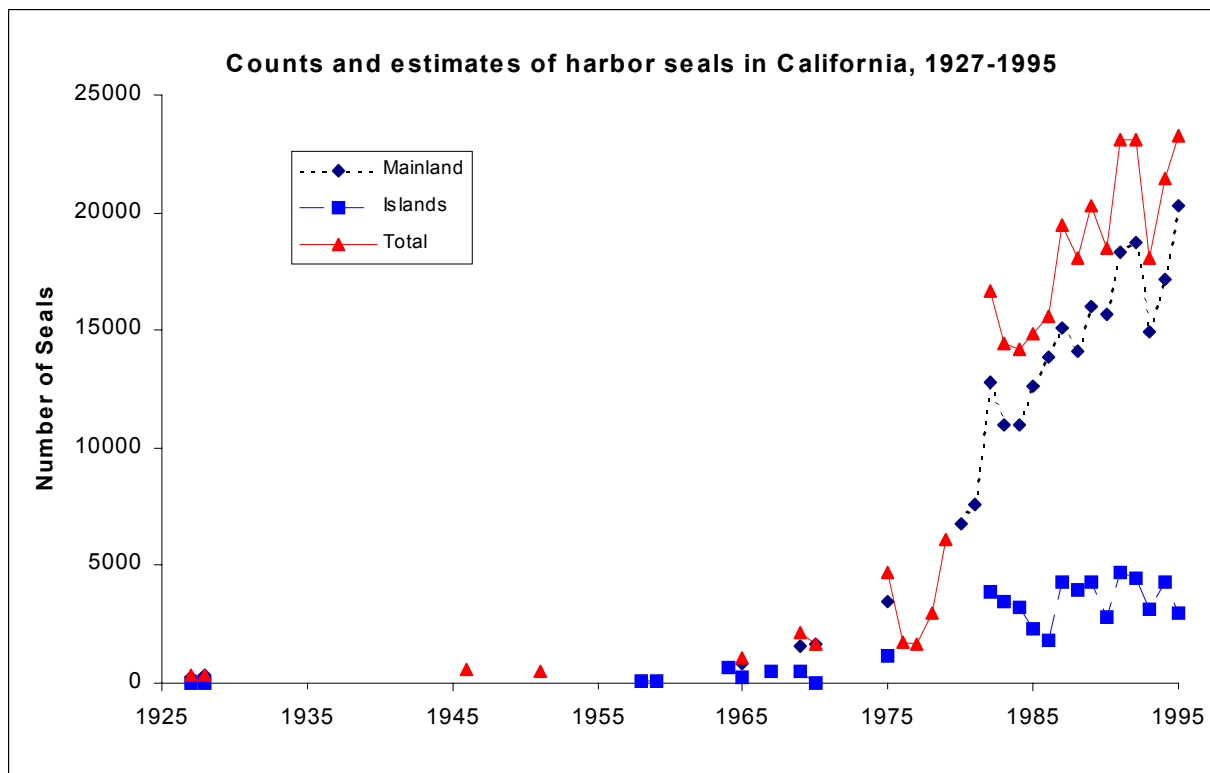
#### Harbor Seal, *Phoca vitulina*

The harbor seal does not have a special status and the California population has dramatically increased in size since the mid-1960s ([Figure 3.7-10](#)). In some areas, including parts of the Channel Islands, the populations are stable or declining either because numbers may have reached the carrying capacity of the available habitat or due to interspecific competition with northern elephant seals. Individual harbor seals spend considerably more time in the water than they do on land, except during the molting period, which peaks in late May to early June and for adult females, during the pupping and nursing period from late February to mid-May ([Figure 3.7-11](#)). The California stock includes 28,000 to 35,600 seals, of which 3,600 to 4,600 inhabit coastal haul-out sites and waters in the Point Mugu Sea Range. During most of the year they remain near their haul-out sites and most feeding occurs in nearshore waters 30 to 130 feet (10 to 40 m) deep (nursing females) or 260 to 390 feet (80 to 120 m) deep (others). Their diet consists of rockfish, spotted cusk-eel, octopus, plainfin midshipman, and shiner surfperch.

#### Northern Elephant Seal, *Mirounga angustirostris*

Northern elephant seals do not have a special status and the California population has dramatically increased in size since the early 1900s. They spend 8 to 10 months of the year feeding in offshore waters north of the Sea Range and most of the remaining time hauled out on beaches where they give birth to pups, breed, and molt (see [Figure 3.7-11](#)). They migrate through the Sea Range four times per year during movements to and from haul-out sites. The California stock is estimated to be approximately





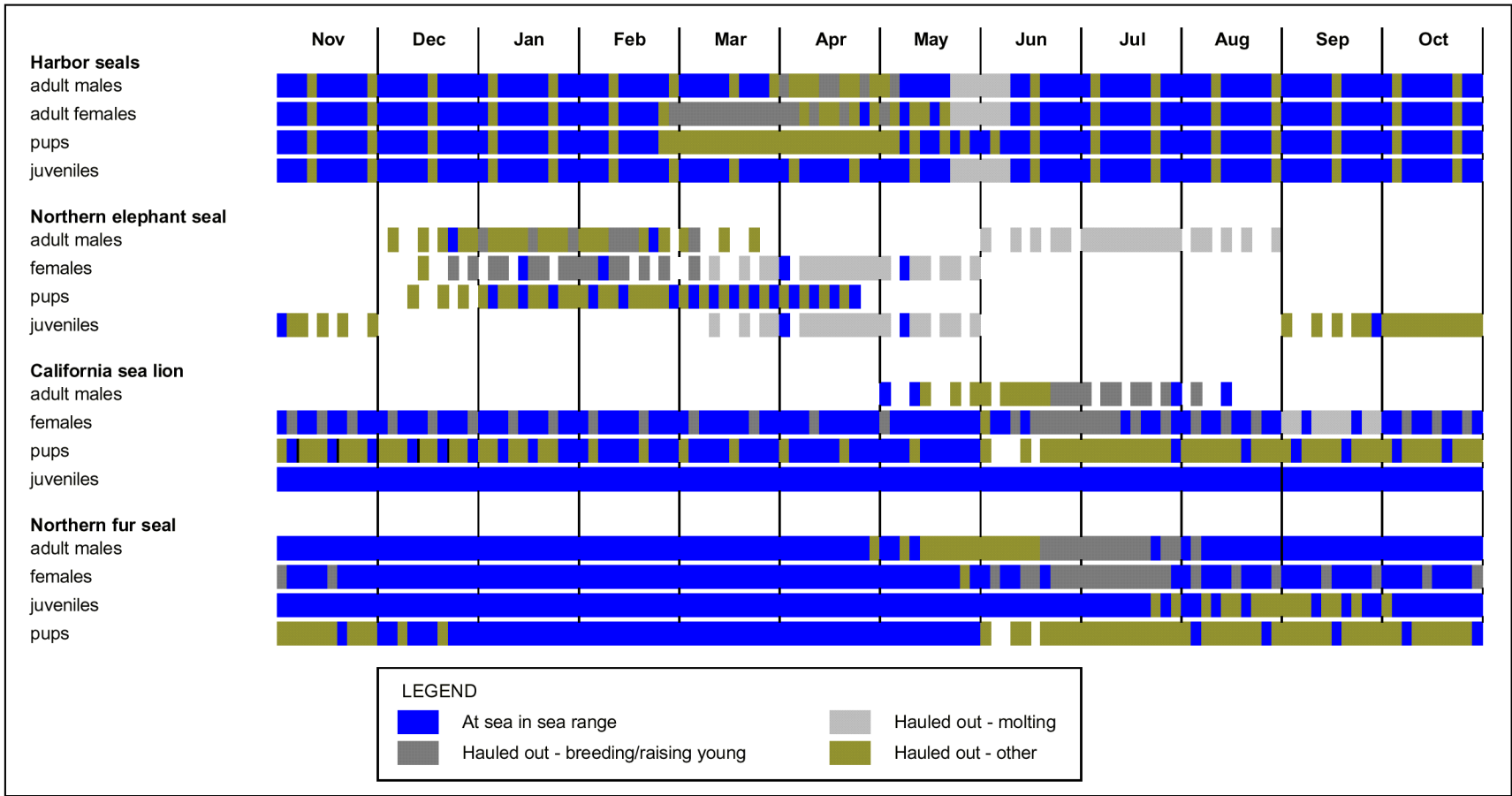
**Figure 3.7-10**  
**Counts of harbor seals in California, 1927-95.**

Plotted from shore-count data in Table 1 of Hanan (1996), which do not include seals at sea at the time of the coastal counts.

84,000 seals of which about 71,000 (85 percent) use islands within the Sea Range. Two-thirds of the seals in the Sea Range use haul-out sites on San Miguel Island, 32 percent on San Nicolas Island, and small numbers on Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara islands. Maximum numbers are present at sea in the Sea Range during winter and lowest numbers occur there during spring and summer. Different age and sex categories have somewhat differing annual cycles (see Figure 3.7-11) and different migration patterns. Most northern elephant seals seen at sea in the Sea Range are moving between haul-out sites for breeding, pupping, and molting and feeding areas north of the Sea Range (Figure 3.7-12). Almost all feeding occurs outside of the Sea Range, mainly far to the north, on bottom-dwelling fishes, squid, and numerous other prey species. Northern elephant seals routinely dive to depths of 492 to 2,625 feet (150 to 800 m) to feed and spend 2 to 3 minutes on the surface after dives lasting 21 to 25 minutes.

California Sea Lion, *Zalophus californianus*

The California sea lion does not have a special status and its population has been increasing at 8.3 percent per year since 1983. It is the most commonly seen pinniped at sea in the Sea Range (Figure 3.7-13). More than 95 percent of the U.S. stock, or more than 159,000 to 179,000 animals, is associated with haul-out sites in the Point Mugu Sea Range, primarily on San Miguel and San Nicolas islands. Adult males haul out from mid-May to late July to defend territories and breed (see Figure 3.7-11). After the breeding season they migrate north of the Sea Range to feeding areas as far north as Puget Sound and British Columbia where they remain until the following spring. Females give birth to their pups in mid-June to mid-July and breed 3 to 4 weeks later. They initially nurse their pups for 8 days and then



**Figure 3.7-11**  
**Activities of pinnipeds throughout the year in the Point Mugu Sea Range. Blanks indicate that animals are found outside of the Sea Range, or in the case of pups, that most pups are not born. Alternating activities indicate that not all animals are engaged in one activity. The width of each segment indicates approximate proportions of animals or of time engaged in each activity.**

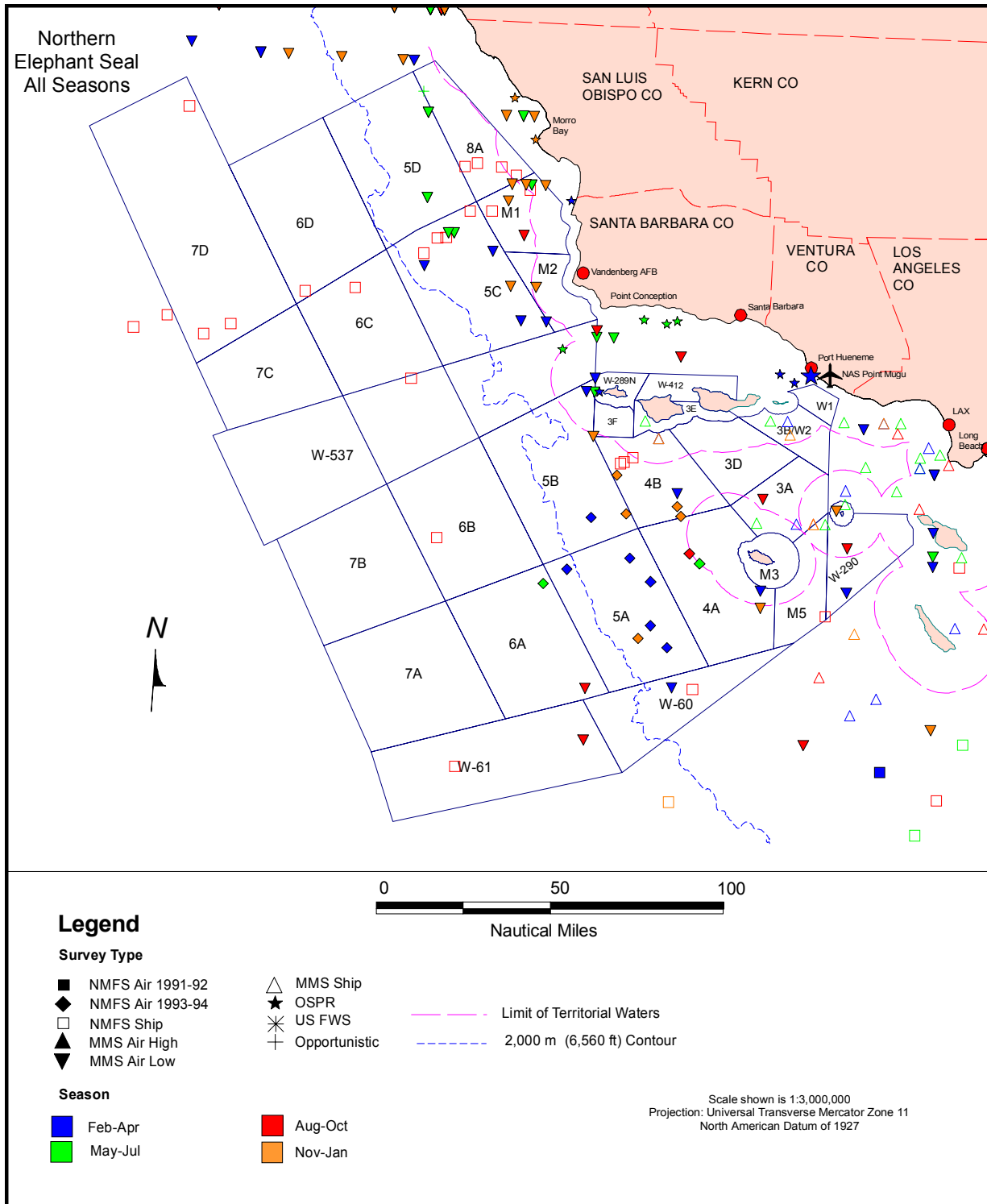
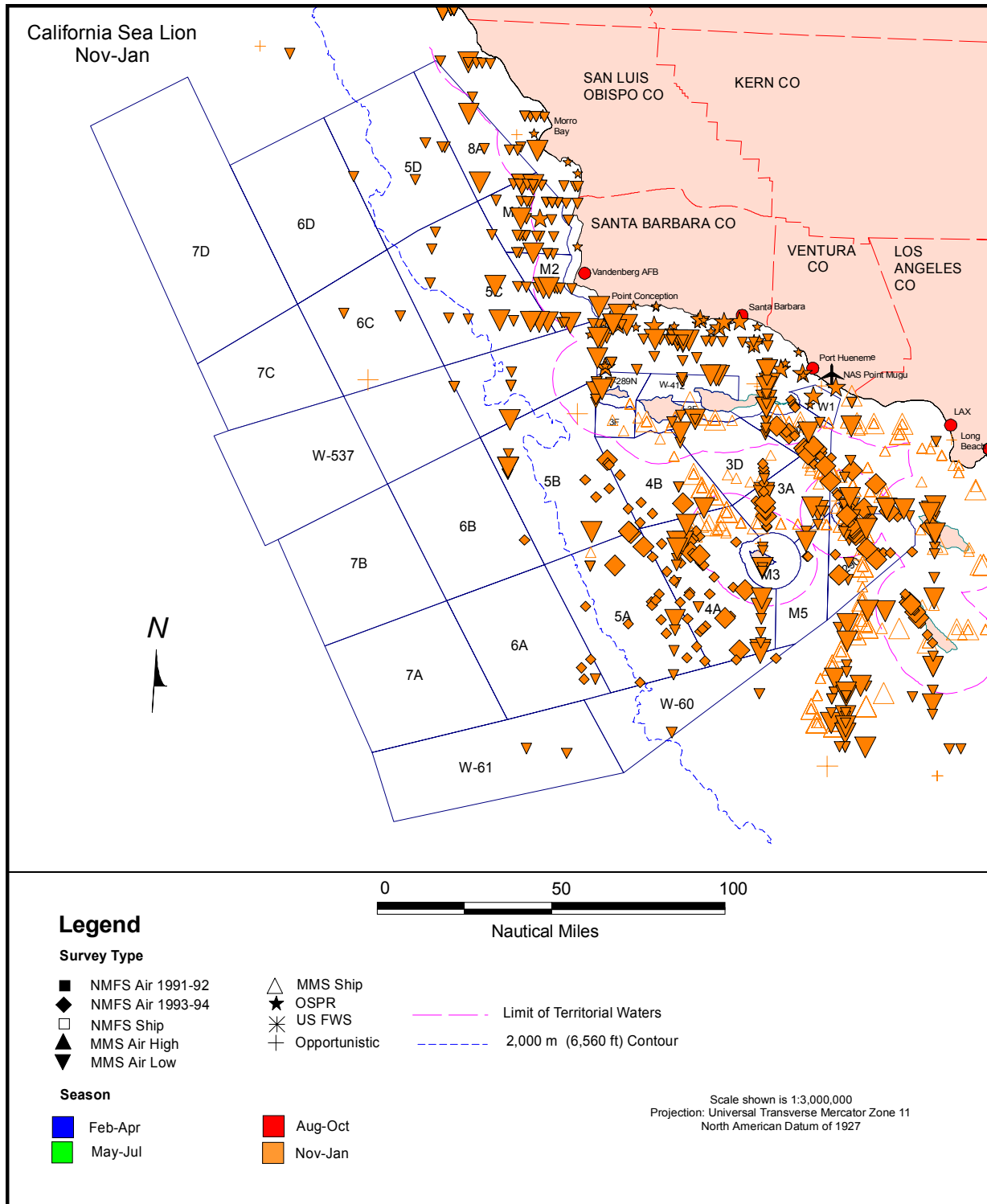


Figure 3.7-12

**Sightings of northern elephant seals during the 1975-96 surveys summarized. Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively. Elephant seals are especially difficult to survey because they are below the surface most of the time.**



**Figure 3.7-13**

**Sightings of California sea lions during the November-January 1975-96 surveys summarized. Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively.**



alternate between feeding trips to sea of 2 to 4 days and nursing periods of about 2 days. Pups are usually weaned at about 8 months (range 4 to 12 months), but some are nursed for more than a year. Adult females and probably most subadults remain near the haul-out sites throughout the year and spend most of their time feeding at sea. Numbers appear to be lowest in offshore waters of the Sea Range (approximately 72,000) during summer when females are molting or nursing their pups, adult males are feeding north of the Sea Range, and pups are still nursing. Total numbers in offshore waters appear similar at other times of year (approximately 130,000 to 160,000; see [Table 3.7-3](#)), except at the peak of the breeding and pupping season in mid-June to early July when a large fraction of adult males and females is hauled out at rookeries. The principal prey species in the Point Mugu Sea Range are northern anchovy, Pacific whiting, and market squid. Most (75 percent) dives are less than 3 minutes in duration and to depths of 70 to 160 feet (20 to 50 m), although dives of up to 10 minutes and 900 feet (274 m) have been recorded. The longer and deeper dives tend to be during the day and the shorter and shallower dives during the night.

#### Steller Sea Lion, *Eumetopias jubatus*

The Steller sea lion is threatened and the stock occurring in California waters is considered a strategic stock (Barlow et al. 1997). Stocks in southwestern Alaska have declined to about half of their 1956-1960 levels. The Eastern stock, which includes the California population, has remained stable since 1965, but colonies in California declined from 6,000 to 7,000 in 1970 to approximately 2,000 in 1989. Steller sea lions now are rarely sighted in the Sea Range and no animals have been sighted at former colonies on San Miguel Island since 1983.

#### Northern Fur Seal, *Callorhinus ursinus*

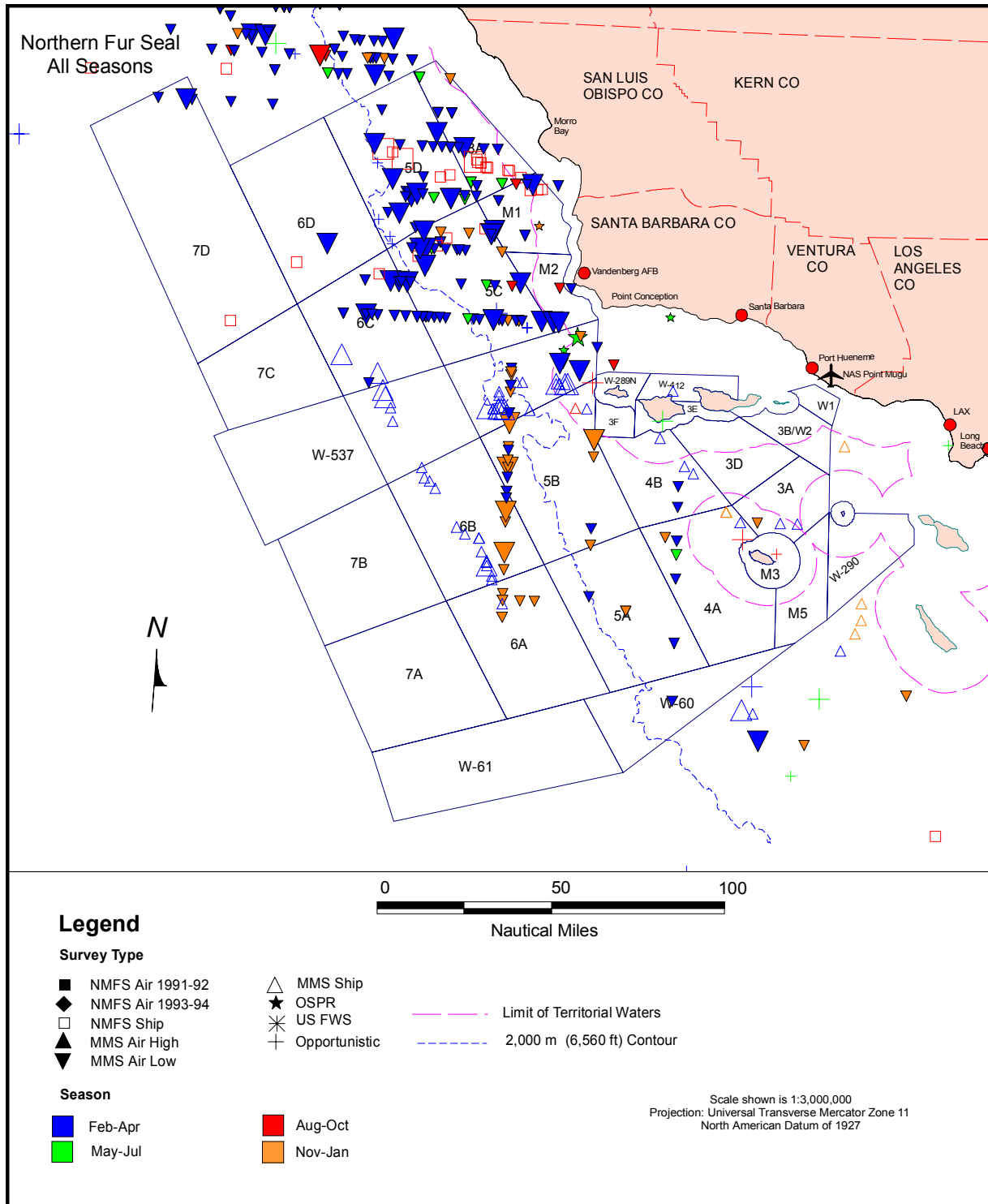
The northern fur seal does not have a special status and the San Miguel Island stock has increased steadily since recolonization in the late 1950s to about 10,000 animals now. This stock remains in or near the Point Mugu Sea Range throughout the year. In addition, some of the females and juveniles from the eastern Pacific stock migrate south into offshore waters of the Sea Range during autumn and winter ([Figure 3.7-14](#)). During autumn and winter, approximately 22,914 and 44,641 northern fur seals, respectively, are present in offshore waters of the Sea Range. When not hauled out on land almost all (98-99 percent) fur seals are found in non-Territorial Waters except during summer when pups are commonly found in the water near their haul-out sites. Northern fur seals feed in the upper water layers (mean dive depth is approximately 225 feet [69 m]) in deep offshore waters on pelagic fish and squid. An average dive is 2.6 minutes in duration.

#### Guadalupe Fur Seal, *Arctocephalus townsendi*

The Guadalupe fur seal is threatened and depleted; the only remaining stock is considered a strategic stock (Barlow et al. 1997). This species has been seen occasionally in the Sea Range (46 sightings from 1969-1986), but the entire population (7,400 animals) is centered on Guadalupe Island, Mexico, approximately 250 NM (460 km) south of the Sea Range. The population has been growing at 13.7 percent per year since 1954 and may be expanding its range. Little is known about its foraging behavior and food preferences but squid is likely an important part of its diet.

#### 3.7.2.4 Sea Otter, *Enhydra lutris*

The southern sea otter is threatened and depleted and this stock is considered a strategic stock. It was nearly extirpated during the 18<sup>th</sup> and 19<sup>th</sup> centuries by hunters who killed sea otters for their pelts. The present population size in California is about 2,400 animals and has been increasing at 5-7 percent per



**Figure 3.7-14**  
 Sightings of northern fur seals during the 1975-96 surveys summarized. Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively.



year. The primary range is along the central California coast north of and inshore of the northern part of the Sea Range. However, the sea otter is expanding its range southward along the coast, including a recent expansion south of Point Conception into the Santa Barbara area. Sea otters prefer rocky shorelines and water about 66 feet (20 m) deep. They feed on benthic invertebrates, including mussels, clams, crabs, abalone, sea urchins, and sea stars. Their predation on the latter species may help to maintain the kelp forests. Sea otters are very rarely seen in offshore waters in the Sea Range.

In 1987-1990, an attempt was made to establish an “experimental population” of sea otters at San Nicolas Island by translocating 139 individuals to that location. This population has diminished to about 17 animals (Ralls et al. 1996; USFWS 1996). The San Nicolas Island experimental population is discussed further in [Section 3.7.4.4](#). The translocation plan included establishment of a “no otter” zone elsewhere south of Point Conception. Because of the potential for sea otters to affect shellfisheries, it was agreed that sea otters found in the “no otter” zone would be captured and moved to San Nicolas Island or to the main range along the central California coast (Ladd 1986). However, the sea otter population has now expanded south from the central California coast into the “no otter” zone.

### 3.7.3 Point Mugu

Many of the species of marine mammals occurring in the Sea Range tend to occur in deep waters and are expected to be rare or absent from nearshore waters within 3 NM (5.6 km) of Point Mugu. In fact, only five species of cetaceans, one species of pinniped, and the sea otter were seen within 3 NM (5.6 km) of Point Mugu during the studies that were summarized for this document (for details, refer to Section 3.7.3 of the “Marine Mammal Technical Report” [NAWCWPNS Point Mugu 1998e]). However, there has been only a very limited amount of survey coverage in nearshore waters off Point Mugu. On rare occasions, other species might be encountered in these waters.

#### 3.7.3.1 Odontocetes (Toothed Whales)

Only four odontocete species were sighted within 3 NM (5.6 km) of shore in the vicinity of Point Mugu. They were Dall’s porpoise, bottlenose dolphin, common dolphin, and pilot whale.

##### Dall’s Porpoise

Dall’s porpoises are normally found well offshore except in locations where deep canyons approach the coast, as occurs at Point Mugu. These nearshore sightings are most often made in winter. In November of 1975, one pod of four Dall’s porpoises was sighted near the coast east-southeast of Point Mugu.

##### Bottlenose Dolphin

The coastal stock of bottlenose dolphins may be found in nearshore waters off Point Mugu because they are commonly seen along the coast 80 to 100 NM (148 to 185 km) southeast of there, and are occasionally seen along the coast northwest of there. However, only two sightings were made near Point Mugu during the studies summarized. Both sightings involved groups of 10 dolphins, one group seen during August and the other during December.

##### Common Dolphin

Common dolphins are abundant throughout offshore areas of the Sea Range, but there was only one sighting of 20 animals in nearshore waters near Point Mugu during the studies summarized. This sighting was during spring (May).

## Pilot Whale

Within the general study region, the pilot whale was found mainly south and east of Point Mugu during the years when the species was common in the area (i.e., prior to 1983). However, four sightings were made near Point Mugu during the studies summarized. They were all seen during October to December, and all involved groups of about 20 whales. Pilot whales have been rare in the SCB in recent years.

### 3.7.3.2 Mysticetes (Baleen Whales)

The only mysticete occurring regularly in nearshore waters adjacent to Point Mugu is the gray whale.

## Gray Whale

A significant proportion of the 23,100 gray whales in the California stock migrate through or near the nearshore waters adjacent to Point Mugu during their southward and northward migrations. The numbers passing Point Mugu at various distances from shore have not been specifically documented. The onshore-offshore distribution is likely to differ from that at some other locations where it has been studied, as gray whales migrating through the SCB follow several migration corridors and do not all travel close to the mainland shoreline (Figure 3.7-15).

The occurrence of gray whales in nearshore waters off Point Mugu is strongly seasonal. Significant numbers are present only during late autumn to winter (December-April). The peak of southbound migration is in early-to-mid January and the peak of northbound migration is in March. Mothers and calves tend to migrate later in the spring than do other whales. Mothers and calves tend to use offshore migration routes and, therefore, most do not pass close to Point Mugu. On the other hand, movements of mothers and calves tend to be more leisurely, so that any mother/calf pairs occurring near Point Mugu are likely to remain there longer than would other gray whales.

### 3.7.3.3 Pinnipeds

The only pinniped that is seen in large numbers near Point Mugu is the harbor seal, which hauls out at the entrance to Mugu Lagoon. Small numbers of California sea lions feed and haul out near Point Mugu, but northern elephant seals and northern fur seals are seldom seen near there.

## Harbor Seal

The harbor seal is a year-round resident at the entrance to Mugu Lagoon. Like coastal haul-out populations farther north, the colony at the Mugu Lagoon entrance appears to be steadily increasing in numbers. In the early-to-mid 1980s, less than 100 harbor seals were counted there during the molting period (Figure 3.7-16). From 1988 to 1995, from 120 to 243 seals were counted in June during the index counts conducted by D.A. Hanan (1996). (Aerial counts of this type underestimate total numbers using the area as animals at sea during the time of the count are not recorded.)

Since early April 1992, Navy scientists have conducted year-round counts of harbor seals hauled out at NAS Point Mugu. The peak counts have been slightly higher than the index counts (Figure 3.7-16). However, even the Navy counts probably do not include all of the seals using the site.

Surprisingly high numbers of seals were hauled out at NAS Point Mugu on most days with Navy counts during August-February (Figure 3.7-17). Other studies have suggested that harbor seals spend most of their time foraging at that time of year, and that they may spend up to a week away from their haul-out



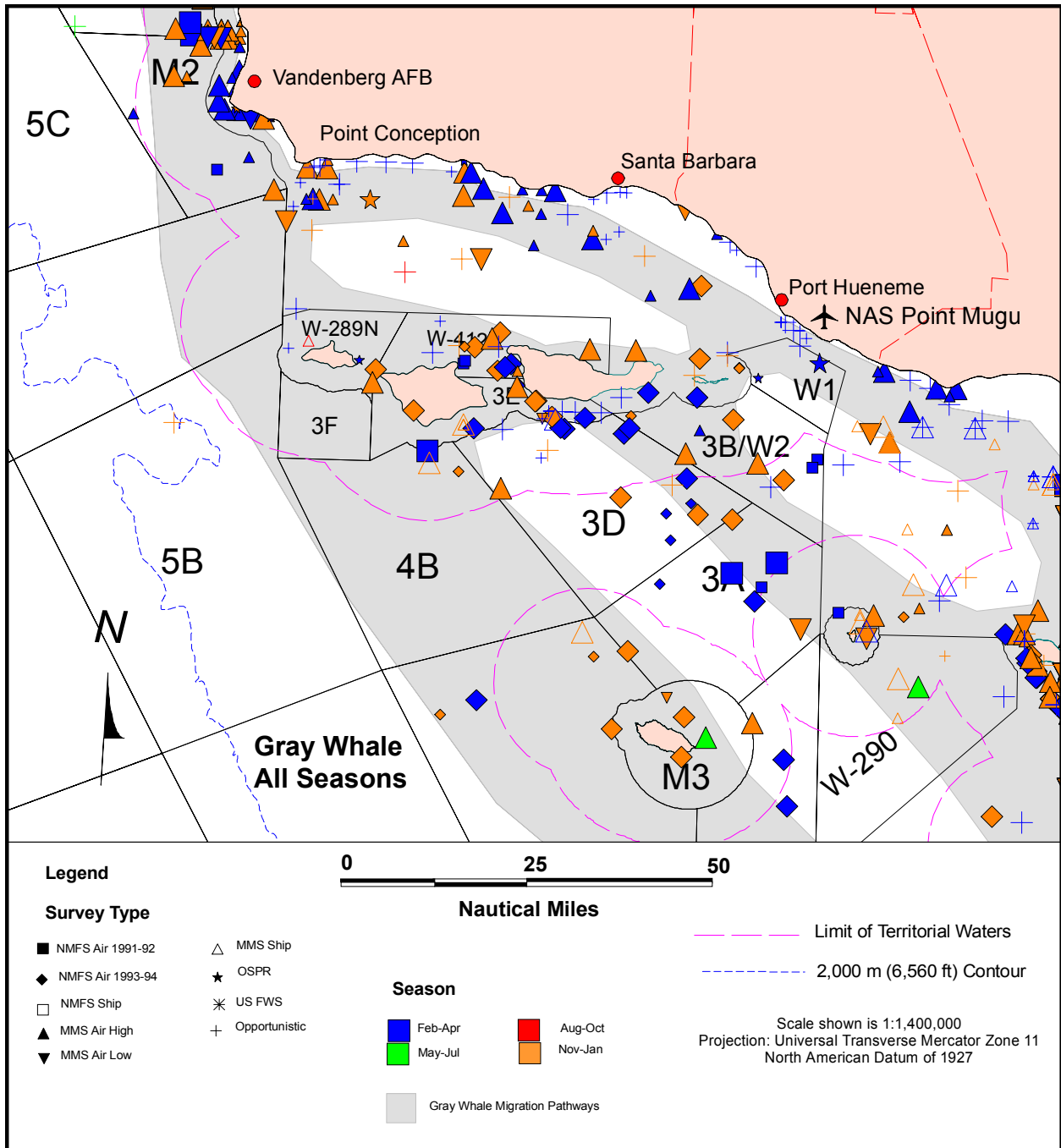
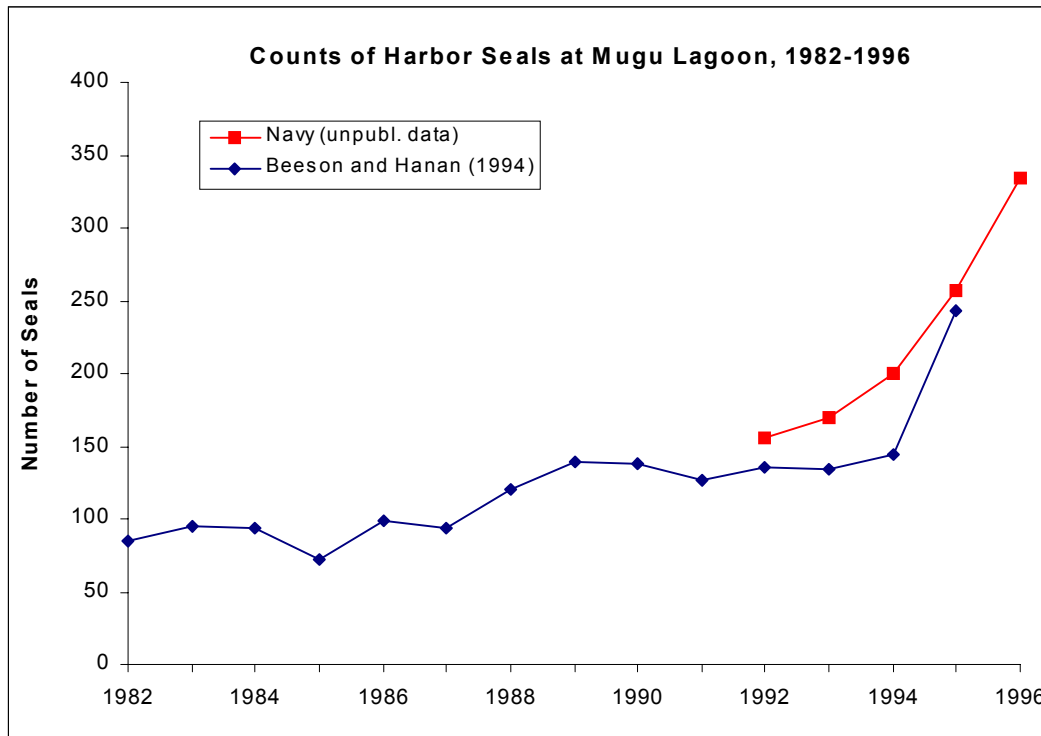


Figure 3.7-15

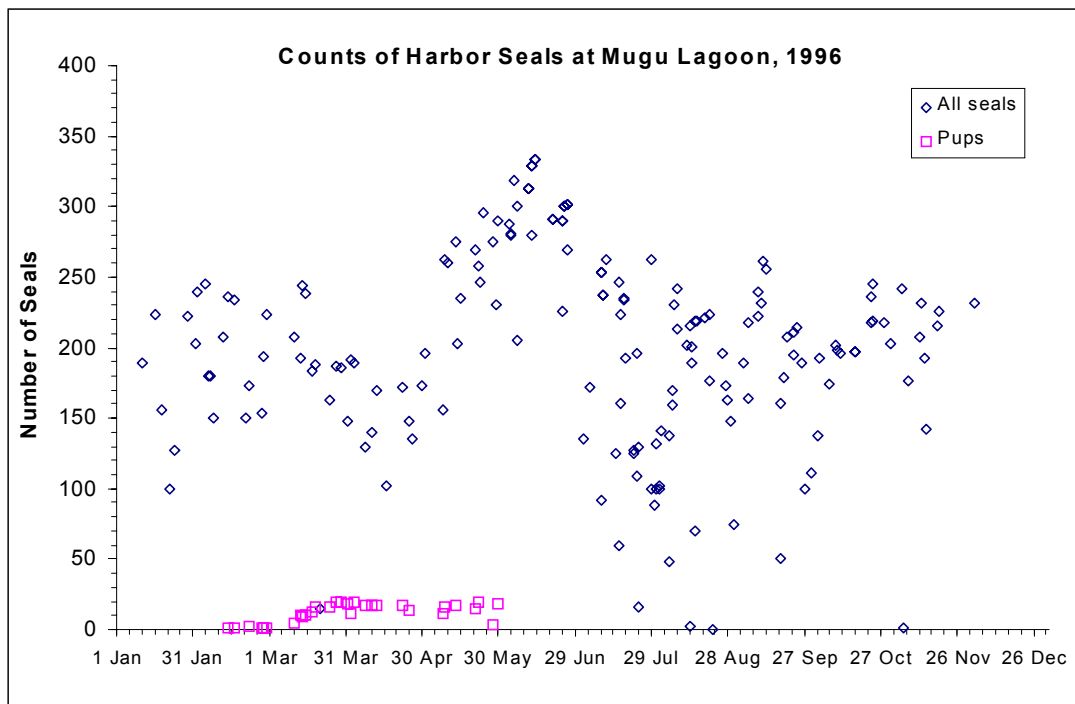
Sightings of gray whales in and near the Channel Islands during the 1975-96 surveys summarized. Survey effort was not uniform throughout the area or at different times of the year; thus sightings cannot be assumed to represent relative abundance either geographically or seasonally. Small and large symbols denote sightings of single animals vs. 2 or more animals, respectively. Generalized migration routes, from Bonnell and Dailey (1993), are superimposed on the actual sightings.



**Figure 3.7-16**

**Counts of harbor seals at Mugu Lagoon, 1982-96.**

Aerial counts are from Beeson and Hanan (1994) and Hanan (pers. comm.). Ground counts are from peak counts obtained by the U.S. Navy in each year (see [Figure 3.7-17](#)).



**Figure 3.7-17**

**Counts of harbor seals at Mugu Lagoon by the U.S. Navy (unpublished data), 1996.**



site. It is possible that abundant food resources near the NAS Point Mugu haul-out site permit harbor seals to spend more time hauled out there than at other sites where food may be less abundant.

The peak number of harbor seals hauled out at NAS Point Mugu during 1996 was 334 adults (13 June) and the population appears to be increasing. This represents about 1.4 percent of the entire California population and about 8 percent of the harbor seals found south of 35°N latitude. From July to April as many as 150 to 250 seals may be hauled out each day, although there is a great deal of day-to-day variation. NAS Point Mugu is not a major pupping area; 25 to 30 pups are born there annually (NAWS Point Mugu 1998h).

### California Sea Lion

California sea lions have been sighted in large numbers in nearshore areas near Point Mugu during all seasons except summer. Even during summer small numbers have been seen hauled out near the harbor seals at Mugu Lagoon entrance. California sea lions that haul out at NAS Point Mugu are probably subadults because they are seen primarily during June and July when adults tend to be found at or near their breeding beaches.

#### 3.7.3.4 Sea Otter

There was one sighting of a sea otter along the coast south of Point Mugu during winter (February) and the carcass of an adult male was found at NAS Point Mugu on 24 April 1998 (NAWS Point Mugu 1998f). South of Point Conception, sea otters are rare but expanding southward along the coast (see [Section 3.7.2.4](#)).

### **3.7.4 San Nicolas Island**

Only a few species of cetaceans are known to occur in waters near San Nicolas Island, and then only in small numbers. However, San Nicolas Island and adjacent waters are important for northern elephant seals, California sea lions, and harbor seals. The Guadalupe fur seal has been seen here in recent years. San Nicolas Island is also the location to which southern sea otters have been translocated in an attempt to establish a population separate from that in central California. Additional details about marine mammals at San Nicolas Island are given in Section 3.7.4 of the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e).

#### 3.7.4.1 Odontocetes (Toothed Whales)

Two species of odontocetes (Dall’s porpoise and northern right whale dolphin) were recorded in waters within 3 NM (5.6 km) of San Nicolas Island during the studies summarized here. Three other species, the common dolphin, pilot whale, and Risso’s dolphin, were seen in Range Area M3 (see [Figure 3.7-1](#)) of the Sea Range, but they were sighted more than 3 NM (5.6 km) from the coast. There are two records of Cuvier’s beaked whales stranded on San Nicolas Island (Leatherwood et al. 1987; NAWS Point Mugu 1998f), but at least the first of those animals probably drifted there after it died at sea. Other species of odontocetes may occasionally occur in these waters in small numbers.

### Dall’s Porpoise

Dall’s porpoise is one of the most abundant cetacean species in the continental slope and offshore regions of the Sea Range (see [Section 3.7.2.1](#)), but it is not common near land. Only one sighting of Dall’s porpoise was made within 3 NM (5.6 km) of the south shore of San Nicolas Island during the

studies summarized here. This sighting was of a group of 2 animals during January. A second sighting was made within Range Area M3 during January but that sighting was farther than 3 NM (5.6 km) from shore.

### Northern Right Whale Dolphin

Northern right whale dolphins are common in continental slope and offshore waters of the Sea Range during winter and spring. However, only one group was sighted within 3 NM (5.6 km) of San Nicolas Island during the studies summarized here. It was a group of 20 animals sighted northeast of the island during January of 1977. Two additional groups were sighted greater than 3 NM (5.6 km) from shore south of San Nicolas Island during February-April.

#### 3.7.4.2 Mysticetes (Baleen Whales)

Two species of mysticetes, gray and humpback whales, have been recorded within 3 NM (5.6 km) of San Nicolas Island. Two other species, fin and minke whales, were recorded in Range Area M3 but were greater than 3 NM (5.6 km) from the coast of San Nicolas Island.

Blue whales may occasionally occur within 3 NM (5.6 km) of San Nicolas Island. Blue whales are common in summer beyond 3 NM (5.6 km) west of San Nicolas Island (see [Figure 3.7-8](#)). This species was occasionally sighted “near” San Nicolas Island in autumn during the mid-1960s to early 1980s (Dohl et al. 1981), and a blue whale stranded on the north side of the island in August 1993 (NAWS Point Mugu 1998f).

### Humpback Whale

No humpback whales were sighted within 3 NM (5.6 km) of San Nicolas Island during the studies summarized here (see [Figure 3.7-7](#)). However, Leatherwood et al. (1984) reported a single animal near the kelp beds off the south shore of San Nicolas Island during July 1984.

### Gray Whale

The most offshore of the known migration corridors of gray whales through the SCB passes near San Nicolas Island (see [Figure 3.7-15](#)). Most sightings of gray whales near the island are during late autumn and winter when the peak of the southbound migration (early-to-mid January) and the peak of the northbound migration occur (March). There were two late autumn sightings less than 3 NM (5.6 km) from shore during the summarized studies, plus two additional late autumn sightings just beyond 3 NM (5.6 km) offshore (see [Figure 3.7-15](#)). There was also a spring (July) sighting of four gray whales just off the east coast of the island; these whales seen outside the migration seasons may have remained near San Nicolas Island for an extended period. A calf stranded on the southeast side of San Nicolas Island in January 1994 (NAWS Point Mugu 1998f).

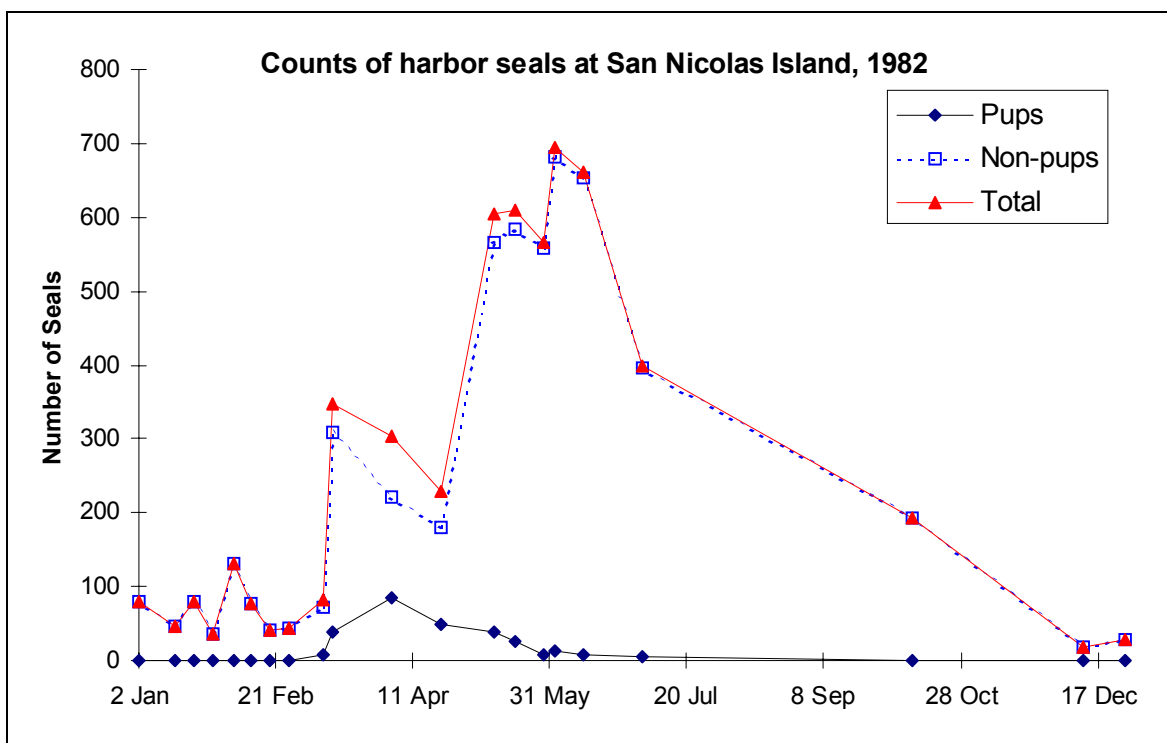
#### 3.7.4.3 Pinnipeds

Three species of pinnipeds presently breed on San Nicolas Island. They include the harbor seal, the northern elephant seal, and the California sea lion. The Guadalupe fur seal may have bred there historically and has been an occasional recent visitor. Steller sea lions have been sighted on the island in the past (Bartholomew 1951) but apparently did not breed there (Stewart and Yochem 1984). They are not likely to occur there now given their general abandonment of southern California waters.



## Harbor Seal

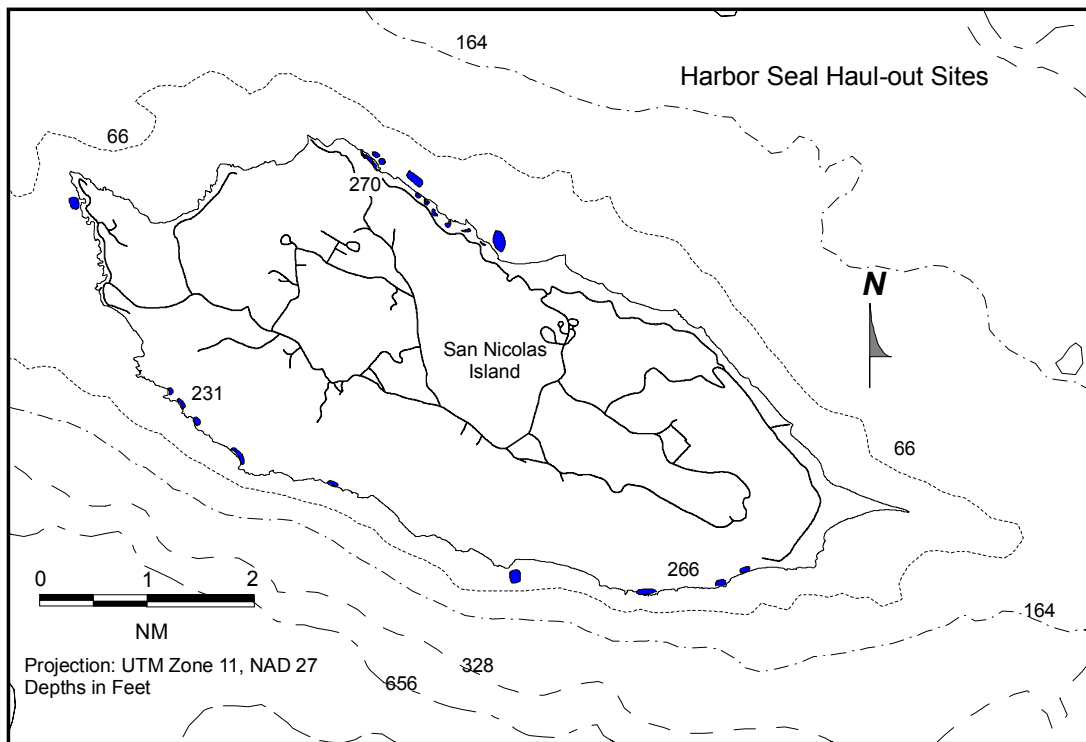
Harbor seals remain near their terrestrial haul-out sites and frequently haul out on land throughout the year, at least for brief periods. However, at most haul-out sites large numbers of seals are seen on land only during the pupping, nursing, and molting periods (see Figures 3.7-11 and 3.7-18). Peak counts represent, at most, 65 to 83 percent of the individuals that use a haul-out site (Huber 1995; Hanan 1996). The pupping period extends from late February to early April with a peak in pupping in late March. The nursing period extends from late February to early May. Females and pups are hauled out for long periods at this time of year. The molting period is in late May to June and all ages and sexes of harbor seals haul out at this time. During winter when most seals spend most of their time feeding at sea, the number of seals hauled out at most sites is approximately 15 percent of the maximum count during the peak of haul out (i.e., 10 to 12 percent of those using the site).



**Figure 3.7-18**  
Counts of harbor seals throughout the year on San Nicolas Island, 1982.  
From Stewart and Yochem (1984).

On San Nicolas Island, most seals haul out at several specific traditionally used sandy, cobble, and gravel beaches (Figure 3.7-19). A few seals haul out at onshore and offshore ledges and reefs, mostly during the pupping and molting seasons (Stewart and Yochem 1994). There is sex and age segregation at many of the sites. There is no recent published information on the number of harbor seals at specific haul-out sites on San Nicolas Island.

Harbor seal abundance increased at San Nicolas Island from the 1960s until 1981, but since then the average counts have not changed significantly. The most recent aerial count at San Nicolas Island was of 457 harbor seals during 1994. This represented 11.9 percent of the 3,826 harbor seals counted in the Point Mugu Sea Range and 2.1 percent of the 21,462 harbor seals counted along California shorelines (Beeson and Hanan 1994). The actual number of harbor seals using San Nicolas Island is probably



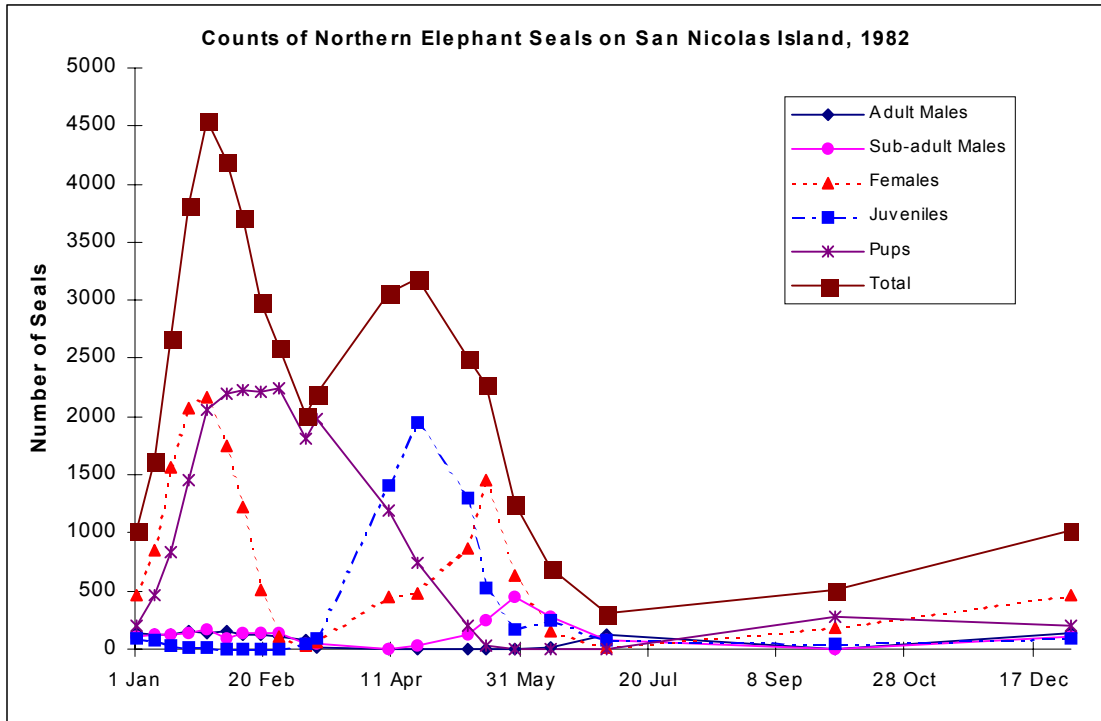
**Figure 3.7-19**  
**Map of San Nicolas Island showing areas used by harbor seals.**

higher than 457 because not all seals are detected on shore during any one aerial survey, and because the 1994 count was lower than in some other recent years (refer to Section 3.7.4.3 of the “Marine Mammal Technical Report” [NAWCWPNS Point Mugu 1998e]).

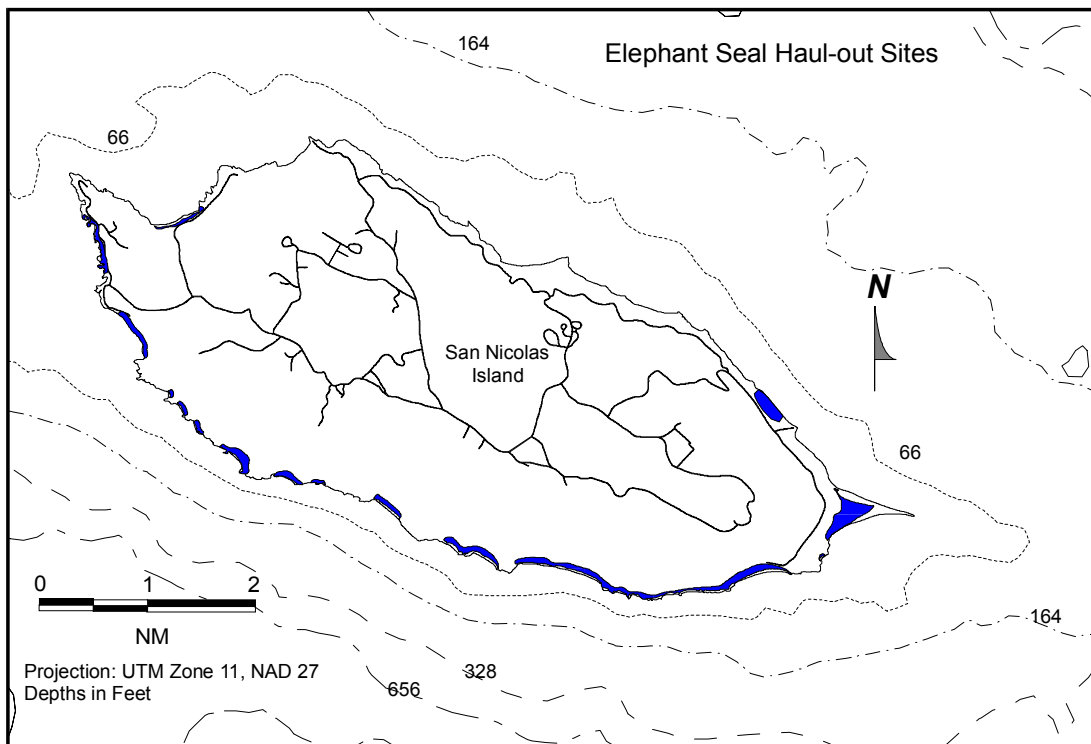
#### Northern Elephant Seal

San Nicolas Island has the second-largest population of northern elephant seals in southern California. Since 1988 the San Nicolas Island population has continued to increase at an average rate of 15.4 percent per year. As of 1995, approximately 23,000 elephant seals of all ages and sexes used San Nicolas Island over the course of the year (refer to Section 3.7.4.3 of the “Marine Mammal Technical Report” [NAWCWPNS Point Mugu 1998e]); this is about 27 percent of the California stock and 32 percent of the population that occurs in the Sea Range. Northern elephant seals haul out at traditional sites twice annually: once to breed and give birth, and a second time to molt (see [Figures 3.7-11](#) and [3.7-20](#)). When not hauled out they travel to feeding areas far north of the Sea Range. Bulls haul out in early December to early February to defend territories and breed, and during June to August to molt. Adult females haul out for one month in mid-December to early March to give birth and breed, and during mid-March to May to molt. Juveniles and nonbreeding adults molt during this latter period; they return to San Nicolas Island to haul out from September through November, with pubertal subadult males remaining until adult males arrive in December. Haul-out areas occur around much of the western, southern, and eastern sides of San Nicolas Island and are expanding around the island ([Figure 3.7-21](#)).





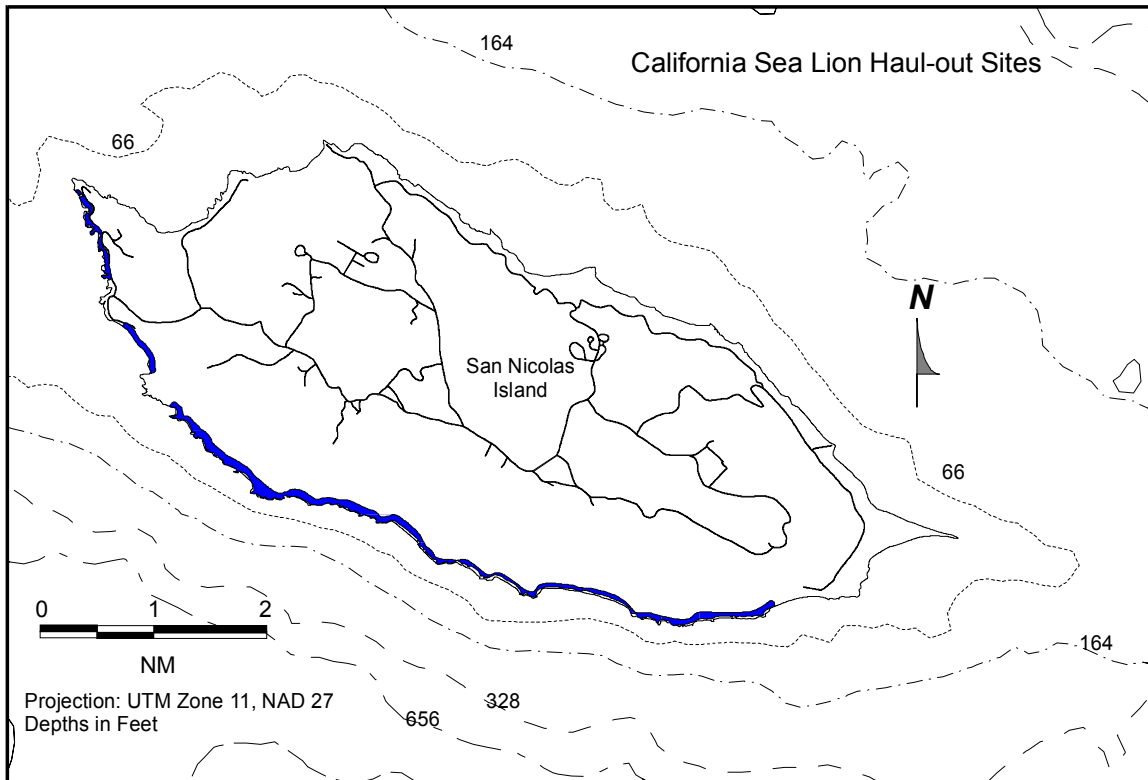
**Figure 3.7-20**  
Counts of northern elephant seals throughout the Year at San Nicolas Island, 1982.  
Plotted from Table 1 in Stewart and Yochem (1984).



**Figure 3.7-21**  
Map of San Nicolas Island showing areas used by northern elephant seals.

### California Sea Lion

California sea lions do not have a special status. The San Nicolas Island population has increased at 21.4 percent per year since 1983. The 1995 size was 78,000 to 88,000 animals of all ages and sexes, which was about 47 percent of the U.S. population. About half of the San Nicolas Island population may be hauled out on land at one time during the peak of the breeding season (refer to Section 3.7.4.3 of the “Marine Mammal Technical Report” [NAWCWPNS Point Mugu 1998e]). Sea lions have recently occupied new areas on San Nicolas Island and they now occur along most of the southern shore (Figure 3.7-22). There is no evidence that numbers have reached the carrying capacity of the available habitat.



**Figure 3.7-22**  
**Map of San Nicolas Island showing areas used by California sea lions.**

### Guadalupe Fur Seal

Eighteen sightings of Guadalupe fur seals were made on San Nicolas Island between 1949 and 1986. Most sightings were either juveniles of undetermined sex or adult males. One male defended a territory among breeding California sea lions each year from 1981 to 1986. Observations suggest that Guadalupe fur seals are capable of obtaining space for breeding among California sea lions, and that they may successfully recolonize the Channel Islands once the species is abundant enough to establish a breeding population (Stewart et al. 1987).



#### 3.7.4.4 Sea Otter

Prior to the fur trade, sea otters were common throughout the Channel Islands. Commercial hunting probably began there by 1811 and by the 1850s sea otters were possibly completely hunted out (Schwartz 1994).

From 1987 to 1990, 139 California sea otters were translocated from central California to San Nicolas Island in an attempt to re-establish a sea otter population there. Of this “experimental population,” at least 17 remained at the island as of 1995 (Ralls et al. 1996; USFWS 1996). The number of sea otters at San Nicolas Island has been relatively stable since November 1989 (USFWS 1996), and to date at least 10 pups have been successfully weaned into the population.

San Nicolas Island sea otters occur throughout the year in subtidal kelp beds at the western end of the island and, in smaller numbers, on the northern side of the island. Their range extends from Vizcaino Point to Dutch Harbor and from Thousand Springs to Tranquility Beach (see [Figure 3.7-23](#)). The kelp beds in these areas provide the primary cover and foraging areas preferred by southern sea otters.

#### 3.7.5 Other Channel Islands

The other Channel Islands in or adjacent to the Sea Range include San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara islands. Eight species of odontocetes and five species of mysticetes were recorded within 3 NM (5.6 km) of these islands during the studies summarized here. Two more species of cetaceans, the sperm whale and northern right whale, have been reported there during studies not included in the summaries. Most cetacean species utilize primarily offshore waters and are seen infrequently near the Channel Islands (Leatherwood et al. 1987).

Some of the Channel Islands are very important to pinnipeds, including the harbor seal, northern elephant seal, California sea lion, and the northern fur seal. Small numbers of sea otters dispersing from San Nicolas Island and perhaps from the central California population have been seen near some of the other islands. Sea otters are regularly sighted around San Miguel and Santa Rosa islands (Channel Islands National Park, DEIS Comment #MM-1). Additional details beyond those summarized below are given in Section 3.7.5 of the “Marine Mammal Technical Report” (NAWCWPNS Point Mugu 1998e).

##### 3.7.5.1 Odontocetes (Toothed Whales)

Although nine species of odontocetes have been seen in nearshore waters within 3 NM (5.6 km) from the other Channel Islands addressed within this subsection, these nearshore areas are not preferred habitat or important feeding, mating, or resting locations for any of these species. All of these species are found in higher numbers in continental slope and offshore waters farther offshore from the Channel Islands. For example, there have been moderate numbers of sightings of common and Pacific white-sided dolphins near the Channel Islands, but these two species are more common in offshore waters near there. Similarly, a few Dall’s porpoises have stranded on San Miguel Island in recent years and small numbers occur year-round near Santa Cruz and Santa Rosa islands. [Section 3.7.2.1](#) describes the seasonal distribution, numbers, and life history of each species in offshore waters where they are more abundant.

##### 3.7.5.2 Mysticetes (Baleen Whales)

Six species of mysticetes have been recorded near the other Channel Islands addressed within this subsection, but these areas are heavily used by only two species, the gray whale and minke whale. A northern right whale was found stranded on Santa Cruz Island in 1916, but no sightings of that species have been made in the Sea Range since then. Humpback, blue, and fin whales have been seen

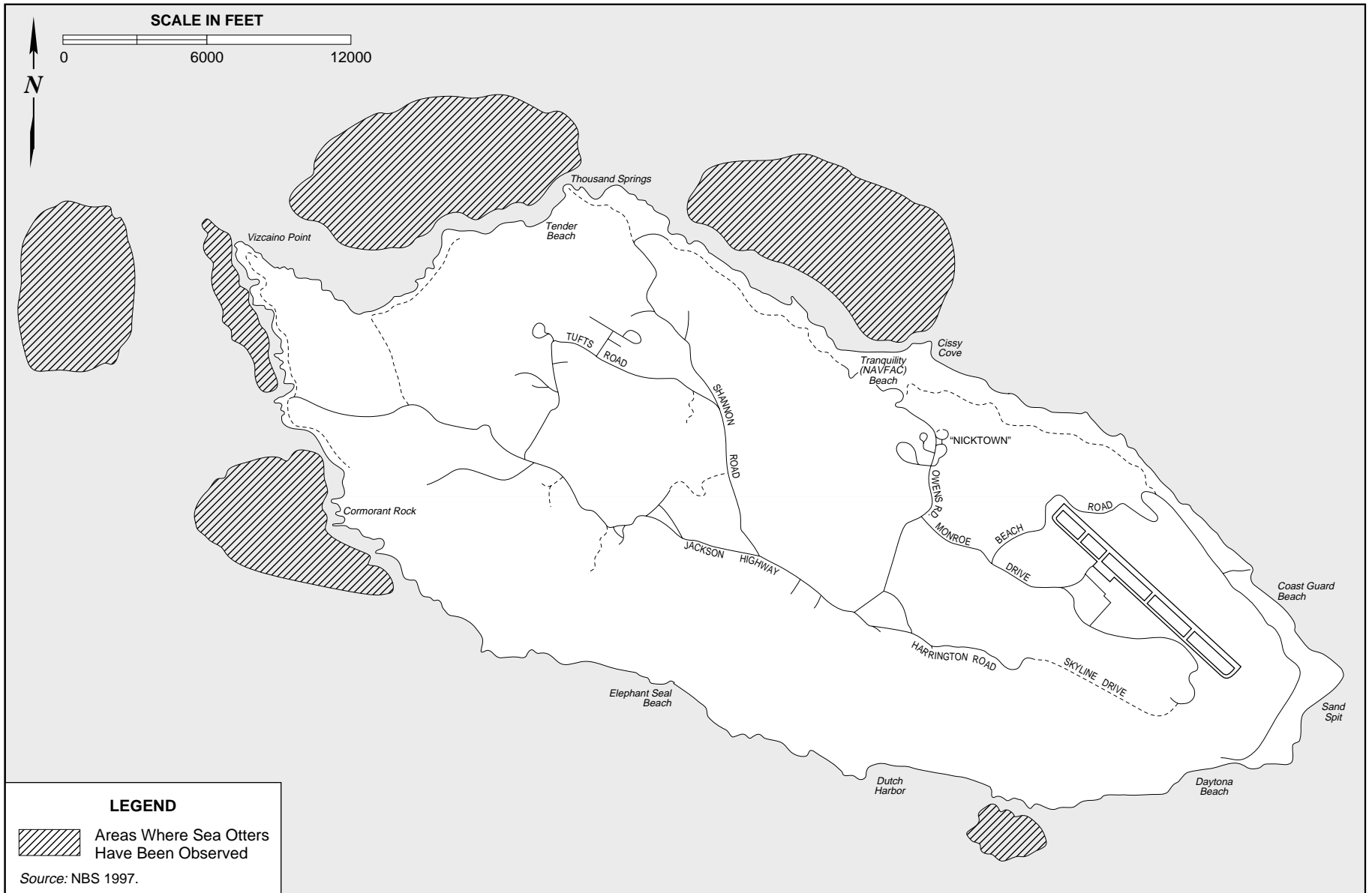


Figure 3.7-23  
Sea Otter Distribution at San Nicolas Island



occasionally in nearshore waters near some of the Channel Islands and have been seen regularly in Territorial Waters greater than 3 NM (5.6 km) from shore. Sightings of northward migrating humpback whales, including calves, have been made during late June through September. Blue whales are commonly seen during September to October, particularly near San Miguel Island. Fin whales are generally seen near the Channel Islands during spring and summer.

### Gray Whale

Gray whale migrations near the Channel Islands are described in [Section 3.7.2.2](#) and mapped in [Figure 3.7-15](#). In addition, gray whales that have not migrated north are occasionally seen near the Channel Islands at times of year outside the normal migration seasons.

Gray whales using the nearshore and offshore migration route pass close to the Channel Islands. During special nearshore aerial surveys of the northern Channel Islands in mid-January 1986, about a third of the whales were found 0 to 2 NM (0 to 3.7 km) from the coasts of the islands, and over 80 percent were found within 4 NM (7.4 km) of the coast (Jones and Swartz 1987a,b) (for additional details, refer to Section 3.7.5.2 of the “Marine Mammal Technical Report” [NAWCWPNS Point Mugu 1998e]; sightings during those special surveys are not included in [Figures 3.7-6](#) and [3.7-15](#)). However, virtually all of the special aerial survey coverage was within 5 NM (9.3 km) of the coast, so any offshore movements would not have been detected. Southbound migrants are generally found farther from shore than are those returning north.

Most mothers and calves were seen near the islands that were closest to the mainland coast (i.e., Santa Cruz, Anacapa and Santa Barbara islands). These mother/calf pairs often were not actively migrating. Resting and milling comprised about a third of the activities performed by mothers and calves, and some calves probably were nursing (Jones and Swartz 1987a).

Radio-tagging studies indicate that migrating gray whales pass through the Channel Islands National Marine Sanctuary in 1 to 4 days (from 6 NM [11.1 km] north of San Miguel Island to 6 NM [11.1 km] south of Santa Barbara Island) (Jones and Swartz 1987b). Although a significant fraction of the 21,100 eastern North Pacific gray whales follow the nearshore and offshore migration routes past the Channel Islands, only 613 to 756 have been estimated to be present at one time (Jones and Swartz 1987a,b).

### Minke Whale

Minke whale movements in the Sea Range are described in [Section 3.7.2.2](#). Their summer distribution includes the western Santa Barbara Channel; the undersea ridge that extends between Santa Rosa and San Nicolas islands; the coastal shelves south of San Miguel, Santa Rosa, and Santa Cruz islands; and the east side of San Nicolas Island (Bonnell and Dailey 1993). Minke whales are also seen near Anacapa Island and southward over the eastern rim of Santa Cruz Basin. During the summer, a significant fraction of the approximately 180 animals that inhabit waters off California would be found in the areas described above.

#### 3.7.5.3 Pinnipeds

Harbor seals are present on all of the Channel Islands in the Sea Range, as well as on Santa Barbara Island near the range ([Table 3.7-5](#)). The numbers of harbor seals shown in [Table 3.7-5](#) represent aerial survey counts of animals hauled out at the time of the survey. Counts include animals of all ages and both sexes. Populations of harbor seals were relatively stable between 1982 and 1995 on all other Channel Islands addressed in this subsection except for Santa Cruz Island. Santa Cruz Island had a mean

**Table 3.7-5. Indices of abundance of pinnipeds that might be encountered in the Point Mugu Sea Range. The given numbers are from counts during the indicated year. For each species the most recent year with counts from all known haul-out sites is given. In many cases, higher numbers were present in other years. Because not all animals are hauled out at one time, even peak counts underestimate the total number of animals using each site each year.**

	San Miguel	Santa Rosa	Santa Cruz	Anacapa	Santa Barbara	San Nicolas
Harbor seal (1994) <sup>a</sup>	1,040	868	1,147	285	29	457
Elephant seal (1995)						
- pups <sup>b,c</sup>	13,462 <sup>c</sup>	186 <sup>c</sup>	Unknown <sup>g</sup>	Unknown <sup>g</sup>	44 <sup>b</sup>	6,575 <sup>c</sup>
- adults & subadults <sup>b,c</sup>	16,020 <sup>c</sup>	246 <sup>c</sup>	Unknown <sup>g</sup>	Unknown <sup>g</sup>	61 <sup>c</sup>	6,983 <sup>c</sup>
California sea lion pups (1990) <sup>d</sup>	13,023	0	Unknown <sup>g</sup>	Unknown <sup>g</sup>	1,286	11,766 <sup>h,i</sup>
Northern fur seal pups (1995) <sup>e</sup>	2,509	0	0	0	0	0
Steller sea lion <sup>f</sup>	Formerly	0	0	0	0	0
Guadalupe fur seal <sup>f</sup>	Occasional	0	0	0	Rare	0

<sup>a</sup> Aerial photos, Beeson and Hanan (1994).

<sup>b</sup> Ground counts, Lowry et al. (1996).

<sup>c</sup> Aerial photos, Lowry et al. (1996).

<sup>d</sup> Ground counts, Lowry et al. (1992).

<sup>e</sup> Barlow et al. (1997).

<sup>f</sup> Ground counts, Stewart et al. (1993).

<sup>g</sup> DeMaster et al. (1984), mention presence.

<sup>h</sup> Aerial photos, Lowry et al. (1992);

<sup>i</sup> Counts of 16,889 pups and 16,020 adults and subadults are available for San Nicolas Island for 1994 (Lowry n.d.). 1994 data are not available for the other islands.

annual population growth of 5.7 percent (Hanan 1996). Harbor seal populations in most other parts of California are increasing (see [Section 3.7.2.3](#)). The populations on several of the Channel Islands may be constrained by interspecific competition with northern elephant seals for haul-out sites.

Two-thirds of the California stock of northern elephant seals breed and pup on San Miguel Island. Elephant seals also breed and pup in small numbers on Santa Rosa and Santa Barbara islands (Lowry et al. 1996; see [Table 3.7-5](#)). Small numbers have been reported on Santa Cruz and Anacapa islands (DeMaster et al. 1984).

In 1990, the largest colony of California sea lions in California was found on San Miguel Island, but now the San Nicolas Island colony may be larger. Small numbers are also found on Santa Barbara Island (see [Table 3.7-5](#); Lowry et al. 1992a).

Steller sea lions were historically present on San Miguel Island, but have not been sighted there since 1983. Guadalupe fur seals are occasional visitors there. San Miguel Island and the adjacent Castle Rock have the only rookery of northern fur seals in the region.

#### A - San Miguel Island

San Miguel Island, the northwesternmost of the Channel Islands, is located 61 NM (113 km) west of Point Mugu. It provides haul-out sites for large rookeries of California sea lions and northern elephant seals, for small rookeries of northern fur seals, and for harbor seals (see [Table 3.7-5](#)).



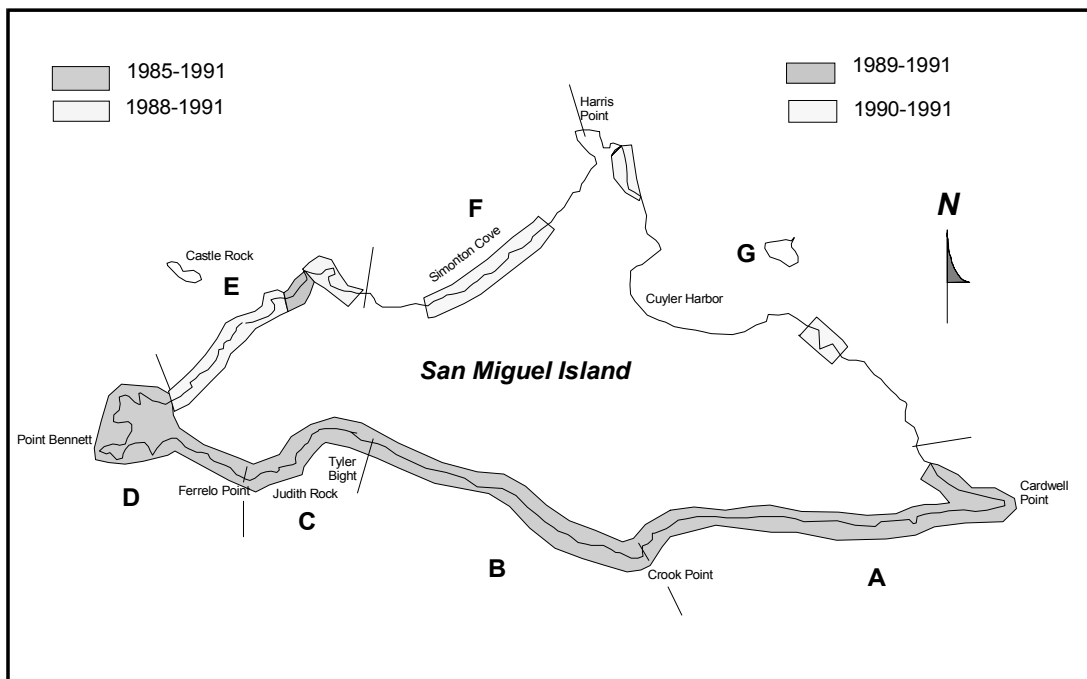
### Harbor Seal

Harbor seals have been found around most of the island except on the western tip (DeMaster et al. 1984). Numbers increased greatly from the early 1950s to the early 1980s, with an average annual increase of 22 percent from 1958 to 1976. From 1982 to 1995, the harbor seal population on San Miguel Island has declined slightly at a mean rate of 1.15 percent per year (Hanan 1996). This decline may be due to interspecific competition for terrestrial sites with northern elephant seals.

### Northern Elephant Seal

San Miguel Island is extremely important to northern elephant seals; two-thirds of the California stock hauls out on San Miguel Island to have their pups, breed, and molt. The general biology, seasonal distribution, and movements of northern elephant seals through the Sea Range are described in [Section 3.7.2.3](#) and their activities while hauled out on land are described in [Section 3.7.4.3](#).

Northern elephant seals haul out all along the south coast and along most of the northwest coast of San Miguel Island ([Figure 3.7-24](#)). Occupation of the latter areas began in 1988 (Lowry et al. 1992b). The number of births increased by an average of 14 percent annually from 1964 to 1981; by 10 percent annually from 1981 to 1985 (Stewart et al. 1993); and by 4.0 percent annually from 1986 to 1995.



**Figure 3.7-24**  
**Map of San Miguel Island showing shaded areas where northern elephant seals were photographed and area codes used to document counts in specific areas of the island.**  
From Lowry et al. (1992).

### *California Sea Lion*

California sea lions are found along the southwest coast of San Miguel Island and at Castle Rock adjacent to San Miguel Island (Lowry et al. 1992a). Most are found on Point Bennett and the coast immediately north of there. California sea lion births have increased on San Miguel Island since counts were started in 1971, but the rate of increase during 1983-1990 (10.8 percent annually) has been lower there than at San Nicolas Island (21.2 percent annually), the other major haul-out area. In 1990, 49 percent of the U.S. stock was associated with San Miguel Island. Based on the 1995 estimate of the size of the U.S. stock, 81,800-92,100 California sea lions use the coast of San Miguel Island to haul out, breed, and give birth to pups. As the population has continued to increase, the areas used have expanded and new haul-out areas have been used.

### *Northern Fur Seal*

Northern fur seal colonies are found at Adams Cove on Point Bennett and also at nearby Castle Rock. These are the only northern fur seal colonies found in California. Based on counts of pups in 1995, the population associated with these haul-out sites is estimated to be approximately 10,000 animals and has increased dramatically in recent years (Figure 3.7-25). These colonies are occupied from early May to late November with different age and sex classes being present at different times (see Figure 3.7-11). Adult males are the first animals to arrive; upon arrival they establish territories which they defend from other males. Females arrive several weeks later and give birth within 1 to 2 days of their arrival. After nursing their pups for an average of 8.3 days, the females alternate between periods of 6.9 ( $\pm 1.4$  standard deviation [SD]) days at sea feeding and 2.1 ( $\pm 0.3$  SD) days nursing. Pups are weaned at 4 to 5 months of age and go to sea immediately (Antonelis et al. 1990). Adult males leave the haul-out sites in late July to early August and go to sea to feed until the following May. Juveniles and other non-breeding animals haul out from mid-August to early October to molt.

### *Guadalupe Fur Seal*

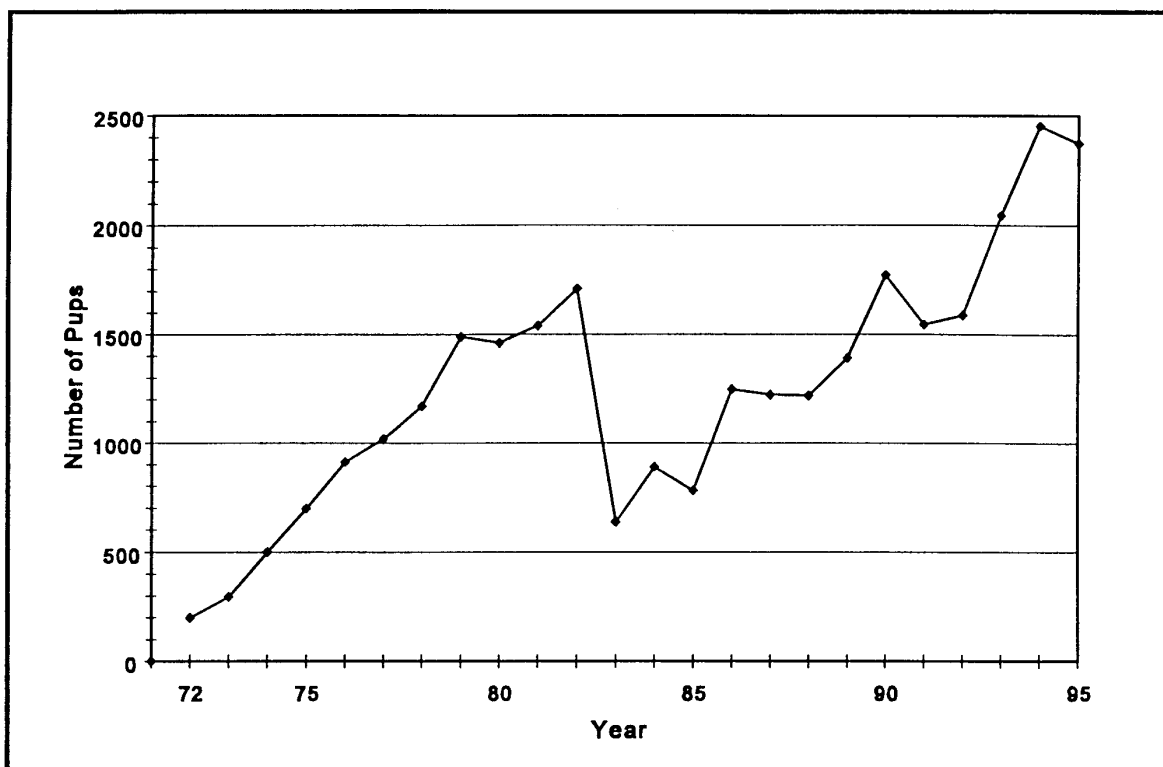
There have been at least 25 sightings of Guadalupe fur seals at San Miguel Island since 1969; nearly all sightings were of subadult and adult males (Stewart et al. 1987). As mentioned for San Nicolas Island in Section 3.7.4, Guadalupe fur seals are able to compete with California sea lions for territories and they may recolonize San Miguel Island if numbers on Guadalupe Island, Mexico, continue to increase (Gallo-Reynoso 1994).

### B - Santa Rosa Island

Harbor seals and northern elephant seals are present on Santa Rosa Island. Harbor seals are distributed around the coastline of Santa Rosa Island (see Table 3.7-5; DeMaster et al. 1984). Numbers increased from 1958 to 1981, but since then have remained relatively stable (Hanan 1996).

In 1985, Stewart and Yochem (1986) observed two northern elephant seal pups and two females at the southwestern tip of Santa Rosa Island. Since then, numbers of pups born there have increased substantially. In 1994 and 1995, 315 and 186 pups, respectively, were counted there (Lowry et al. 1996). The rapid rate of increase is at least partially due to immigration of females from other rookeries.





**Figure 3.7-25**  
**Counts of live northern fur seal pups on San Miguel Island, 1972-95.**  
**From Barlow et al. (1997).**

C - Santa Cruz Island

Harbor seal haul-out sites are distributed all around the coastline of Santa Cruz Island (DeMaster et al. 1984). As on other Channel Islands, the Santa Cruz Island population increased dramatically from 1958 to 1981. However, unlike the situation on the other islands, the population has continued to grow at a rate of 5.7 percent annually from 1982-1995 (Hanan 1996). Based on a single photographic count, 1,147 harbor seals were hauled out on Santa Cruz Island in 1994 near the peak period of haul out (Beeson and Hanan 1994).

DeMaster et al. (1984) report that California sea lions and northern elephant seals have been seen on Santa Cruz Island. Breeding or pupping has not been documented there for either species. The use of Santa Cruz Island by California sea lions and northern elephant seals is probably sporadic.

D - Anacapa Island

Harbor seals regularly haul out and pup in small numbers on Anacapa's component islets (three distinct islets comprise Anacapa Island). California sea lions and northern elephant seals occasionally haul out there but no pupping has been observed (DeMaster et al. 1984).

Harbor seals haul out in small numbers at all three of the Anacapa islets (DeMaster et al. 1984; Hanan et al. 1992). There was an increase in the harbor seal population there from 1958 to 1981, but the increase

was not as dramatic as at San Miguel and Santa Cruz islands. Since 1982 the population has remained relatively stable (Hanan 1996). A total of 285 harbor seals were counted there during a single photographic survey in 1994 (Beeson and Hanan 1994).

### E - Santa Barbara Island

Santa Barbara Island is along the edge of the Sea Range but is not actually within it. Moderate numbers of California sea lions and small numbers of harbor and northern elephant seals occur there.

#### *Harbor Seal*

Very few harbor seals haul out at Santa Barbara Island and no pupping is thought to occur there (Hanan et al. 1992). The counts have been variable and have ranged from 0 to 35 seals. The most recent count was 29 in 1994.

#### *Northern Elephant Seal*

Small numbers of northern elephant seal pups have been born on Santa Barbara Island in recent years. From 1984 to 1991, 69 to 106 pups were born there annually, but in 1993 to 1995 (the last years with published census data) only 44 to 53 pups were born annually.

#### *California Sea Lion*

Moderate numbers of California sea lions haul out and give birth to pups on Santa Barbara Island, which is just outside the border of the Sea Range. The population has doubled since counts were initiated in 1975. In 1990, 1,286 pups were counted there, suggesting a total population of 5,700 to 6,400.

### 3.7.5.4 Sea Otter

In 1990 a group of 10 sea otters was found near Point Bennett on San Miguel Island. These may have been animals that had been translocated to San Nicolas Island but had left there (USFWS 1996). From 1990-1993, 14 sea otters were captured on San Miguel Island and relocated to the mainland population, as called for under the provisions of the “no otter” zone (see [Section 3.7.2.4](#)). The most recent survey indicated that at least two sea otters were still present at San Miguel Island (USFWS 1996).



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