

# **Appendix B**

## **Descriptions of Non-Salmonid Species**

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## Appendix B

Appendix B provides detailed descriptions of the status of non-salmonid species listed under the Federal Endangered Species Act.

### B.1 Status of Listed Non-Salmonid Species

#### B.1.1 Mammals

##### B.1.1.1 Steller Sea Lion

Steller sea lions range along the North Pacific Ocean rim from northern Japan to California (Loughlin et al. 1984), with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands, respectively. The Steller sea lion is listed under the ESA throughout its U.S. range, which extends from California and associated waters to Alaska, including the Gulf of Alaska and Aleutian Islands, and into the Bering Sea and North Pacific and the Russian waters and territory. In 1997, NMFS reclassified the Steller sea lion as two distinct population segments under the ESA (62 FR 24345); the population west of 144°W. Longitude (a line near Cape Suckling, Alaska) is listed as endangered, and the population east of that line (subject area of this Environmental Impact Statement [EIS]) is listed as threatened. A recovery plan for Steller sea lions has been adopted (NMFS 1992).

NMFS designated critical habitat (58 FR 45278, August 27, 1993) for the Steller sea lion based on the Recovery Team's determination of habitat sites that are essential to reproduction, rest, refuge, and feeding. Critical habitats include all rookeries, major haul-outs, and specific aquatic foraging habitats. This designation does not place any additional restrictions on human activities within the designated areas.

Steller sea lion population declines have been documented in the core of their range in Alaska resulting in the species being listed as threatened under the Endangered Species Act. The overall trend of the eastern population segment of Steller sea lions since 1980 is stable to increasing although significant declines in the number of Steller sea lions occurring within California prior to 1980 have been documented (NMFS 1995). California experienced a large decline in Steller sea lion numbers prior to 1980. An estimated 50 percent declined between about 1950 and 1980. Some of the available data indicate that a northward shift in Steller sea lion range may be occurring, which may exacerbate the decline at southern rookeries.

NMFS has determined that for Steller sea lions, the mortality and serious injury incidental to commercial fishing operations will have negligible impact (60 FR 45399; August 31, 1995). A 'negligible impact' is defined as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through an effect on annual rates of recruitment or survival. Section 7 consultation was completed on this determination (NMFS 1995) including issuance of an incidental take statement for commercial fishing operations of up to 106 Steller sea lion from the eastern population annually (east of 144°W. longitude).

**B.1.1.2 Guadalupe Fur Seal**

Historically, the Guadalupe fur seal (*Arctocephalus townsendi*) ranged from Point Conception, California, to the Revillagigedo Islands, Mexico. At the present time Guadalupe fur seals pup and breed only at Guadalupe Island, Mexico, but individuals have been sighted in the Channel Islands and central California and in the Gulf of California (Gallo 1994). The population is considered to be a single stock because they pup and breed only at Guadalupe Island, Mexico. In 1993, the population was estimated by Gallo (1994) to comprise 7,408 animals. These counts were of breeding populations and indicated the population is increasing exponentially at an average annual growth rate of 13.7 percent.

**B.1.1.3 Blue Whale**

Blue whales (*Balaenoptera musculus*) are distributed in temperate and tropical waters of both hemispheres. Along the coast of the eastern north Pacific, blue whales range from Alaska to Mexico. Generally, observed migrating individually or in groups of three to four along the continental slope. The current population estimate for blue whales is 1,785 whales for the California/Mexico stock (Barlow et al. 1997). No reliable data are available on the current trend in abundance for this stock.

**B.1.1.4 Fin Whale**

Fin whales (*Balaenoptera physalus*) are found world wide in coastal waters of temperate oceans and are uncommon in tropic and polar regions. Actual population structure and seasonal distribution of fin whales in the eastern Pacific is uncertain. The population of fin whales in California has been estimated at 933 animals based on ship surveys (Barlow et al. 1997). No estimates exist for Oregon or Washington waters at this time.

**B.1.1.5 Humpback Whale**

Humpback whales (*Megaptera novaeangliae*) are found throughout the North Pacific. Based on genetic differences and sighting of distinctive marked individuals, the population found in the coastal waters of California, Oregon, Washington, and Mexico is considered one stock. This stock ranges from Costa Rica (Steiger et al. 1991) to southern British Columbia (Calambokidis et al. 1993), but is most common in coastal waters off California in summer and fall, and in Mexico in the winter and spring. The stock abundance estimate for this population is 597 animals, however, no reliable data are available on the current trend in abundance for this stock (Barlow et al. 1997).

**B.1.1.6 Right Whale**

Right whales (*Eubalaena glacialis*) inhabit temperate and cooler coastal waters of the north Pacific. Based on sighting data, Wada (1973) estimated a total population of 100 to 200 in the north Pacific. The lack of confirmed sightings of juveniles since the 1900 has raised concerns on the viability of this species. However, a group of three to four right whales were sighted in western Bristol Bay (July 4, 1996). The group appears to have included a juvenile animal (Goddard and Rush in press). A reliable estimate of abundance for the North Pacific right whale stock is currently not available (Hill et al. 1997).

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### B.1.1.7 Sei Whale

Sei whales (*Balaenoptera borealis*) are distributed far out to sea in temperate regions of the world and do not appear to be associated with coastal features. Sei whales are now rare in California coastal waters (Dohl et al. 1983), but were the fourth most common whale taken by California coastal whalers in the 1950s through 1960s (Rice 1974). Lacking additional information on the Sei whale population structure, Sei whales in the eastern North Pacific are considered a single stock. There are no abundance estimates for Sei whales along the West Coast of the U.S. or in the eastern North Pacific (Barlow et al. 1997).

### B.1.1.8 Sperm Whale

The sperm whale (*Physeter catodon*) is an open-water species and is found mainly in temperate to tropical waters in both hemispheres. They feed mainly on medium - to large-size squid, but may also feed on large demersal and mesopelagic sharks, skates, and fishes (Gosho et al. 1984). Sperm whales are found year round in California waters (Dohl et al. 1983), but they reach peak abundance from April through June and from the end of August through mid-November (Rice 1974). They are seen in every season except winter (December through February) in Washington and Oregon (Green et al. 1992). The populations of this stock in California, Oregon, and Washington is estimated at 1,231 animals which is considered conservative as the population assessment survey utilized did not include waters of Oregon and Washington (Barlow et al. 1997). Data regarding trends in population of this species in the eastern North Pacific is currently unavailable.

The Columbian white-tailed deer (endangered) is restricted to small areas of reaches of the lower Columbia River (Proctor et al. 1980). The population is found on Tenasillahe Island and in the Julia Butler Hansen National Wildlife Refuge, near Cathlamet, Washington. This animal is restricted to riparian and upland habitats of the river corridor. Animals likely drink water from the Columbia River.

## B.1.2 Birds

The California brown pelican nests from coastal southern California south along the Pacific Ocean coast of Mexico, and into the Gulf of California. From mid-summer onwards, large numbers of birds move up the Pacific Coast, including to the Washington Pacific coast, and small numbers of birds are occasionally found in northern Puget Sound (Wahl 1984, Speich et al. 1987, Brueggeman 1991, Burger et al. 1999). The birds spend the late summer feeding in coastal waters and roosting on offshore rocks and islands. Pelicans dive from the air to capture fish in the near surface water column, sometimes fully submerging. Nearly all birds depart Washington marine waters by the end of the year. The Brown pelican is listed as Endangered, but is being considered for down-listing to threatened or to complete delisting.

The Aleutian Islands Canada goose is listed as a threatened subspecies. The species is only present along the ocean coast of Washington during the spring and fall migration period. This goose nests in the Aleutian Islands and winters in the central valley of California. It is known to stop in Humboldt Bay, California during migration. Finding small numbers in Washington during the migration period would not be a surprise.

Marbled Murrelets are mainly found along the northern Pacific Ocean coast of Washington and in northern Puget Sound during the nesting period (Speich et al. 1992, Speich and Wahl 1995). Birds often fly many miles inland to natural nest sites in the canopy of old-growth and mature forests. When young are present at nest sites adults make one or more trips to the nest site to feed their nestlings. Birds feed at sea by diving to catch individual prey, usually fish, in the water column. During the winter many marbled murrelets remain in Washington marine waters. Relatively few murrelets occur south of Point Grenville during the summer nesting period. Very small numbers are known to occur in the mouth of the Columbia River. The species is listed as threatened under the Endangered Species Act.

The western snowy plover is a threatened species that occurs along the Pacific Ocean coast of Washington. Only small numbers are known to nest in Washington, at Leadbetter Point, Willapa Bay and Damon Point, Grays Harbor. Birds are known to winter at Cape Shoalwater. This species nests in sandy areas near the water. It forages on coastal beaches.

The bald eagle breeds in western and eastern Washington (McAllister et al. 1986), nesting in trees in terrestrial or riparian areas. The nest trees are often located near water, but some nests are farther from water. Most nests are located at lower elevations. Birds nest near both fresh water and marine habitats, with birds feeding in both, thus linking terrestrial and water habitats. During the portions of the non-breeding period, Bald eagles are known to concentrate on rivers to forage on fish, primarily salmon, and to scavenge on dead salmon. Bald eagles also scavenge dead marine mammals and other marine organisms. When birds forage or scavenge in aquatic habitats they usually come into direct contact with the water, often wading. Birds are also potentially exposed through tissues of contaminated prey. This species is being proposed for delisting.

The American peregrine falcon nests throughout Washington, from the San Juan Islands to eastern Washington including along the Columbia River. Peregrine Falcons feed almost exclusively on a variety of birds. In marine areas they forage marine birds, such as alcids, storm-petrels, shorebirds, gulls and ducks. In terrestrial habitats, such as forests, they eat a variety of larger passerine birds, such as flickers and jays. When near aquatic habitats, such as rivers and wetlands, they forage on available species such as ducks. In shrub-steppe and steppe areas they may forage on species such as meadowlarks and larks. Peregrine falcons are found throughout the state during migration and the winter period. Peregrine falcons usually nest on ledge and pot holes of cliffs, but tree nests are known. This species is being considered for delisting.

## **B.1.3 Reptiles**

### **B.1.3.1 Sea Turtles**

Studies of sea turtle distribution and abundance in the North Pacific Ocean are progressing, but there are many gaps on the knowledge base. Pacific sea turtles nest on beaches in the tropics and subtropics but have been sighted in the eastern North Pacific as far north as the Gulf of Alaska. Many species are highly mobile and may migrate thousands of miles. Sea turtle populations have been declining worldwide (National Research Council 1990).

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Aerial surveys of California, Oregon, and Washington waters have shown that most leatherbacks occur in slope waters, while fewer occur over the continental shelf. Adult green turtles are benthic herbivores, subsisting mainly on algae and sea grasses. Their diet would seem to restrict them to the photic zones surrounding islands and continents. Loggerheads inhabit continental shelves, bays, estuaries and lagoons. They are generally found feeding on benthic invertebrates in hard bottom habitats. Olive Ridleys are widely distributed in the Pacific and appear in both coastal and pelagic habitats. Forges appear confined mainly to tropical neritic waters, where individuals may dive as deep as 300 meters to feed on benthic crustaceans (Eckert 1991).

NMFS determined that commercial fishing by coastal fisheries poses a negligible threat to the Pacific species (NMFS 1990). Research indicated that the incidental involvement of sea turtles with commercial fisheries on the West Coast is rare. No turtles have been reported taken in the salmon fisheries of Washington, Oregon, and California. Leatherback turtles have been taken in experimental shark drift gillnets (1986 through 1988) off California, Oregon, and Washington; however, federal permits for the shark drift gillnet operations were not renewed after 1998.

## B.2 Status of Unlisted Marine species

The commercial troll and fisheries in southeast Alaska and in the Council management areas and the commercial gillnet fisheries in the Columbia River are classified as Category III fisheries Marine Mammal Protection Act, indicating a remote or no likelihood of known incidental mortality or serious injury of marine mammals.

### B.2.1 Mammals

Pinniped and cetacean species interact with salmon fisheries either in the fisheries through entanglements and possibly mortalities, or through competition for prey directly or indirectly. The pinniped species present in the southeast Alaska management area are Steller sea lion and harbor seal. The pinniped species present in the Council area are California and Steller sea lions; Guadalupe fur, northern fur, northern elephant, and harbor seals. Cetacean species present in the Southeast Alaska area include humpback, grey, killer, and minke whales; Dall's and harbor porpoise; and Pacific white-sided dolphin. Cetacean species present in the Council management area include Baird's beaked, blue, Cuvier's beaked, false killer, fin, gray, Hubb's beaked, humpback, killer, minke, North Pacific beaked, pilot, Pygmy sperm, right, sei, and sperm whales; Dall's and harbor porpoise; common, north right whale, Pacific white-sided, Risso, and striped dolphins. Humpback whales and Steller sea lions are discussed in the section on listed mammals. The population status and management actions concerning other unlisted species are summarized below.

#### B.2.1.1 Northern Fur Seal

Northern fur seal (*Callorhinus ursinus*) in U.S. waters consists to two distinct stocks - an eastern Pacific stock composed of animals breeding on the Pribilof Islands and Bogoslof Island, and a San Miguel Island stock in southern California. In 1994, stock assessment estimates projected the size of the U.S. population of fur seals to be 1,019,192 animals of

which the San Miguel Island stock represented 10,036 animals (Barlow et al. 1997). The eastern population migrates southward in to the eastern North Pacific Ocean during the late fall and early winter, reaching peak numbers of 86,000 off Washington in April (Antonelis and Perez, 1984). Northward migration begins by early spring with fur seals mostly absent from the area from July through December. The San Miguel Island stock is present in California waters year-round. Unlike the Eastern Pacific northern fur seal stock, the San Miguel stock has been increasing in population and is not considered depleted (NMFS 1993).

### **B.2.12 Pacific Harbor Seals**

Pacific harbor seals (*Phoca vitulina richardsi*) inhabit coastal and estuarine waters off Baja California, north along the western coast of North America to Cape Newenham in the Bering Sea. They are present year-round and pupping occurs in all three states. Harbor seals use near shore rocks, reefs, sand bars beaches, drifting glacial ice for rookery and haulout sites. They feed in marine, estuarine and, occasionally fresh waters. They frequent logs and floating structures, shallow bays, and tidal flats near abundant food sources. Within Council waters two stocks are recognized: Oregon and Washington coastal stock, and a California stock. Three separate stocks of harbor seals are recognized in Alaska waters: 1) the southeast Alaska stock (occurring from the Alaska/British Columbia border to Cape Suckling), 2) the Gulf of Alaska stock (occurring from Cape Suckling to Unimak Pass), including animals throughout the Aleutian Islands, and 3) the Bering Sea stock (including all waters north of Unimak Pass) (Hill et al. 1997). The overall Gulf of Alaska stock size remains small compared to its size in the 1970s and 1980s. The harbor seal population for the West Coast of the United States has been increasing and currently is estimated at 27,131 animals in the coastal waters of Washington and Oregon, and 30,293 animals for California (Barlow et al. 1997).

### **B.2.13 California Sea Lion**

California sea lions (*Zalophus californians*) range from offshore islands of Mexico to Vancouver Island, British Columbia. California sea lions use open water for feeding, and near shore islands, reefs, and rocks for hauling out. In the United States, California sea lions breed primarily on the California Channel Islands of Santa Barbara, San Nicolas, San Miguel, and San Clemente. After breeding, many adults and sub-adult males migrate northward into British Columbia, Washington and Oregon. The peak of the northward migration occurs in September through October on the Oregon Coast, in December in Washington, and in January and February in British Columbia. In the spring, most subadults and adult males migrate south, returning to the breeding rookeries in Southern California and western Baja California, Mexico.

The California sea lion population has increased dramatically in this century. The population off the West Coast of the United States has increased steadily at an average annual rate of more than five percent since the mid 1970s and now may be greater than any historical level (Barlow et al. 1995, and Low 1991). The California sea lion off the West Coast of the United States in 1994 was estimated at between 161,066 and 181,355 animals (Barlow et al. 1995).

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### **B.2.14 Guadalupe Fur Seal**

Historically, the Guadalupe fur seal (*Arctocephalus townsendi*) ranged from Point Conception, California, to the Revillagigedo Islands, Mexico. At the present time Guadalupe fur seals pup and breed only at Guadalupe Island, Mexico, but individuals have been sighted in the Channel Islands and central California and in the Gulf of California (Gallo 1994). The population is considered to be a single stock because they pup and breed only at Guadalupe Island, Mexico. In 1993, the population was estimated by Gallo (1994) to comprise 7,408 animals. These counts were of breeding populations and indicated the population is increasing exponentially at an average annual growth rate of 13.7 percent.

### **B.2.15 Northern Elephant Seal**

The northern elephant seal (*Mirounga angustirostris*) is the largest of the pinnipeds in the North Pacific. They breed between January and March on islands from central California south to Baja California, Mexico. After the breeding season, they move into coastal and offshore waters with males traveling as far north as southeast Alaska. Current population estimates for the California stocks is 84,000 animals, with the number of pups appearing to be leveling off in the last two years (Barlow et al. 1997).

### **B.2.16 Dall's Porpoise**

Dall's porpoise (*Phocoenoides dalli*) are widely distributed across the entire north Pacific Ocean (Leatherwood and Reeves 1983). Stock structure of the eastern North Pacific Dall's porpoise is not known, but for management and stock assessment purposes the population is divided into two stocks based on geographical areas: Alaskan waters, and California, Oregon, and Washington waters. Off the U.S. West Coast, they are commonly seen in shelf, slope and offshore waters. Typically, they are seen in groups of two to ten animals, although they sometimes aggregate in larger numbers (Ellis 1989). The California/Oregon/Washington population is estimated at 47,661 animals (Barlow et al. 1997). No reliable information on trends in abundance exists. The Alaska stock of Dall's porpoise is estimated at 417,000. This number, however, may be overestimated by as much a five fold because of vessel attraction behavior (Hill et al. 1997; Turnock and Quinn 1991). No reliable information on trends in abundance exists (Hill et al. 1997).

### **B.2.17 Harbor Porpoise**

Harbor porpoise (*Phocoena phocoena*) in the eastern North Pacific Ocean range from Point Barrow, Alaska, down the West Coast of North America to Point Conception, California (Gaskin 1984). The harbor porpoise is a year round resident that often inhabits bays and inshore waters, however its shyness makes it difficult to acquire accurate population data. They are generally observed in small groups of two to ten animals, but there are reports of larger aggregation especially when animals are actively feeding (Ellis 1989). There are four stocks that may be present within waters under Council jurisdiction: Central California stock, Northern California, Oregon and Washington coastal stock, and Washington inland waters stock. Aerial and ship surveys conducted between 1988 and 1993 estimate a population of about 43,000 animals along the coasts of California, Oregon, and Washington (Barlow et al. 1997). Recent population trends for the species along the West Coast appear

to be stable, although the distribution and abundance of the Central California stocks appears to be correlated with changes in sea surface temperatures (Forney 1996). Three separate management units are established for Alaska (southeast Alaska, Gulf of Alaska, and Bering Sea stocks). Estimated corrected abundance for the three stocks is 29,744 animals. No reliable information on trends in abundance exists (Hill et al. 1997).

### **B.2.1.8 Pacific White-Sided Dolphin**

Pacific white-sided are found throughout the temperate North Pacific Ocean. In the eastern North Pacific the species occurs from the Southern Gulf of California, north to the Gulf of Alaska, west to Amchitka in the Aleutian Islands, and is rarely encountered in the southern Bering Sea. Two stocks are recognized within the Central North Pacific. Buckland et al. (1993) calculated population abundance at 931,000 animals for the one in Alaska, but abundance estimates may be biased upwards. No reliable information exists on trends in abundance for the stock. Off the U.S. West Coast, Pacific white-sided dolphins have been seen primarily in shelf and slope waters. Based on potential fishery interactions, the population has been divided into two stocks: California/Oregon/Washington stock and the Alaskan stock. The population size for the California, Oregon and Washington stocks is placed at 121,693 animals (Barlow et al. 1997). No reliable information exists on trends in abundance for this stock.

### **B.2.1.9 Bottlenose Dolphin**

Bottlenose dolphins (*Tursiops truncatus*) are distributed worldwide in tropical and warm-temperate waters. This species primarily inhabits coastal habitats, but surveys also regularly find them in offshore waters (Forney et al. 1995). Based on potential fishery interaction this species is divided into three stocks: 1) California coastal stock, 2) California, Oregon and Washington offshore stock, and 3) Hawaiian stock. Since the 1982 through 1993 El Niño, which increased water temperature off California, California coastal stock have been consistently sighted in central California as far north as San Francisco (Barlow et al. 1997). The California, Oregon and Washington offshore stock may range into Oregon and Washington during periods of warm-water intrusions. The total population of this species (coastal and offshore) occurring off the West Coast of the United States is estimated at 2,695 animals (Barlow et al. 1997). No reliable estimate can be made regarding trends in abundance for this species.

### **B.2.1.10 Northern Right Whale Dolphin**

Northern right whales (*Lissodelphis borealis*) are endemic to temperate waters of the North Pacific Ocean. Off the U.S. West Coast, they are found primarily in shelf and slope waters, with some evidence of seasonal north-south movement (Forney et al. 1995). For potential fishery interaction purposes this species is defined as a single stock including only animals found within the U.S. EEZ of California, Oregon and Washington. The population is estimated at 21,332 animals off the U.S. West Coast (Barlow et al. 1997). No information is available regarding trends in abundance of northern right whale dolphins in California, Oregon, and Washington.

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### **B.2.1.11 Risso's Dolphin**

Risso's dolphins (*Grampus griseus*) are distributed world wide in tropical and warm-temperate waters. Off the U.S. West Coast, Risso's dolphins are commonly seen on the shelf in the Southern California Bight and in slope and offshore waters of California, Oregon and Washington. Based on potential fishery interactions the population is divided into two discrete, non-continuous areas 1) waters off California, Oregon and Washington, and 2) Hawaiian waters. The California, Oregon and Washington population is estimated at 32,376 animals obtained from aerial surveys (Forney et al. 1995). No reliable information exists on trends in abundance for this stock.

### **B.2.1.12 Striped Dolphin**

Striped dolphins (*Stenella coeruleoalba*) are distributed worldwide in tropical and warm-temperate waters. Recent shipboard surveys observed this species within 100 nautical miles to 300 nautical miles from the coast (Barlow et al. 1997). For the Marine Mammal Protection Act (MMPA) stock assessment reports, striped dolphins within Pacific U.S. EEZ are divided into two discrete non-contiguous areas 1) waters off California, Oregon, and Washington, and 2) waters around Hawaii. In recent analysis combining data from 1991 and 1993 shipboard surveys within 300 nautical miles of the California coast, (Barlow and Gerrodette 1996) estimate the abundance of striped dolphins to be 24,910 animals. There is insufficient data available to evaluate potential trends in abundance for this species.

### **B.2.1.13 Short-Beaked Common Dolphin**

Short-beaked common dolphins (*Delphinus delphis*) are the most abundant cetacean off California and are widely distributed between the coast and at least 300 nautical miles distance from shore. The abundance of this species off California has been shown to change on both seasonal and inter-annual time scales (Forney et al. 1995). For the MMPA stock assessment reports, this is a single Pacific management stocks for this species off the coast of California, Oregon and Washington. This species population is estimated at 372,425 animals within 300 nautical miles of the California coast. Abundance of this species in Council waters varies with oceanographic condition; recent events appear to have increased both the relative and absolute abundance of this species off California (Barlow et al. 1997).

### **B.2.1.14 Long-Beaked Common Dolphin**

Long-beaked common dolphins (*Delphinus capensis*) have only recently been recognized as a distinct species (Rosel et al. 1994). Along the U.S. West Coast their distribution overlaps with that of the short-beaked common dolphin, and much historical information has not distinguished between these two species. Long-beaked common dolphins are commonly found within about 50 nautical miles of the coast from Baja California, Mexico, northward to about central California (Barlow et al. 1997). Shipboard surveys in 1991 and 1993 off the California coast project abundance of long-beaked common dolphins as 8,980 animals (Barlow and Gerrodette 1996). Due to the historical lack to distinguish between the two species of common dolphins it is difficult to establish trends in abundance for this species.

### **B.2.1.15 Baird's Beaked Whale**

Baird's beaked whales (*Berardius bairdii*) are distributed throughout deep waters and along the continental slopes of the North Pacific Ocean. They have been sighted in virtually all areas north of 35° N latitude, particularly in regions with submarine escarpments and sea mounts (Kasuya and Ohsumi 1984). They are the most commonly seen beaked whales within their range, perhaps because they are relatively large and gregarious, traveling in schools of a few to several dozen, which makes them more noticeable to observers. Baird's beaked whales are migratory, arriving in continental slope waters during summer and fall months when surface temperatures are the highest (Dohl et al. 1983). Baird's beaked whales found in the waters off California, Oregon, and Washington are managed as a single stock based on potential fishery interaction considerations. The population estimate for this stock is 252 animals (Barlow et al. 1997). Reliable estimates of trends in abundance for this stock are currently unavailable.

### **B.2.1.16 Cuvier's Beaked Whale**

The distribution of Cuvier's beaked whales (*Ziphius cavirostris*) is known primarily from strandings, which indicate it is the most widespread of the beaked whales and is distributed in all oceans and most seas except in high polar waters (Moore 1963). In the northeastern Pacific from Alaska to Mexico no obvious patterns of seasonality to strandings have been identified (Mitchell 1968). Populations found in the waters of California, Oregon and Washington are considered a single stock for management and stock assessment purposes. The population estimate for the California, Oregon and Washington stock is 9,163 animals and is considered conservative because survey work did not cover the waters of Oregon and Washington (Barlow et al. 1997). Reliable estimates of trends in abundance for this stock are currently unavailable.

### **B.2.1.17 Mesoplodont Beaked Whales**

Mesoplodont beaked whales (*Mesoplodon* spp.) Are distributed throughout deepwater and along the continental slopes of the North Pacific Ocean. At least five species in this genus have been recorded off the U.S. West Coast, but due to the rarity of records and the difficulty in identifying these animals in the field virtually no species-specific information is available (Mead 1989). The five species known to occur in this region are: Blainville's beaked whale (*M. densirostris*), Hector's beaked whale (*M. hectori*), Stejneger's beaked whale (*M. stejnegeri*), Ginkgo-toothed beaked whale (*M. ginkgodens*), and Hubbs' beaked whale (*M. carlhubbsi*). Until methods of distinguishing these five species are developed, all the *Mesoplodon* whales located in the waters of California, Oregon and Washington are considered one stock. The collective population estimate for this stock is 2,106 animals (Barlow et al. 1997). No reliable data exists on trends in abundance of these species.

### **B.2.1.18 Gray Whale**

The gray whale (*Eschrichtius robustus*) is primarily a coastal, near shore species usually found in water depths of less than 50 meters. Its range extends from breeding grounds off of Baja California, Mexico, to major feeding areas in the Bering and Chukchi Seas. Two stocks are recognized in the North Pacific, the eastern Pacific Stock and the western Pacific

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stock or “Korean” stock. The population of Eastern North Pacific gray whales is estimated to be 22,571 animals (Hobbs et al. 1996). The population has been increasing over the past several decades with estimated annual rate of increase at 3.29 percent (Buckland et al. 1993). In June 1994, the eastern North Pacific stock of gray whale was removed from the list of Endangered and Threatened Wildlife.

### **B.2.1.19 Killer Whale**

Killer whale (*Orinus orca*) populations have been observed in all oceans and seas of the world (Leatherwood and Dahlheim 1978). These animals prefer the colder waters of both hemispheres, with the greatest abundances found within 800 kilometers of major continents. In Alaska waters, killer whales occur along the entire Alaska coast from the Chukchi Sea, into the Bering Sea, along the Aleutian Islands, Gulf of Alaska, and into southeast Alaska (Braham and Dahlheim 1982). Four killer whale stocks are recognized along the west coast of North America from California to Alaska with two of them occurring in Alaska, the Eastern North Pacific Northern Resident stock and the Eastern North Pacific Transient stock (Hill et al. 1997). The combined count of resident killer whales in Alaskan waters is 601, and the count of transient whales is 187 (Dahlheim and Waite 1993; Dahlheim 1994; Dahlheim et al. 1996). Reliable data on trends in population abundance for either stock are considered unavailable (Hill et al. 1997). Based on genetic differences and consideration of potential fishery interaction, there are three killer whale stocks that may reside in Council waters: Eastern North Pacific southern resident stock (inland waters of Washington); Eastern North Pacific transient stock (Alaska-inland waters of Washington); the California/Oregon/Washington Pacific coast stock. Survey techniques utilized for obtaining population estimates of killer whales is a direct count, and a correction factor is currently unavailable. Given that scientists continue to identify new whales, the estimate of abundance on the number of uniquely identified individuals known to be alive is likely conservative. No abundance estimates have been made for offshore Oregon and Washington waters. Population estimate for California and inland waters of Washington do exist and combined produce an estimate of 843 animals (Barlow et al. 1997). Reliable data on trends in abundance for either of these two stocks is considered unavailable.

### **B.2.1.20 Minke Whale**

Minke whales (*Balaenoptera acutorostrata*) are usually seen over the continental shelves in the eastern Pacific Ocean from near the equator north to the Bering Sea (Leatherwood et al. 1982). Minke whales are relatively common in the Bering and Chukchi Seas and in the inshore waters of the Gulf of Alaska (Mizroch 1992). Minke whales in Alaska are considered a separate stock from those in California, Oregon, and Washington. No estimates have been made for the number of minke whales in the entire North Pacific or for the number that occur in waters of Alaska. No data exist on trends in abundance in Alaskan waters (Hill et al. 1997).

Minke whales in Washington, Oregon and California are considered a separate stock, as it appears they have established a home range within this region (Dorsey et al. 1990). No estimates have been made for the number of minke whales in the entire North Pacific or for the number that occur in the collective waters of Washington, Oregon, and California. In

California coastal waters, the number of Minke whales is estimated at 201 animals (Barlow et al. 1997). No data exists on trends in abundance for this stock.

### **B.2.1.21 Short-Finned Pilot Whale**

Short-finned pilot whales (*Globicephala macrorhynchus*) inhabit coastal areas of the tropics and warm- temperate waters of the eastern North Pacific Ocean. Short-finned pilot whales were commonly seen off southern California, with an apparent resident population around Santa Catalina Island, as well as, seasonal migrants (Dohl et al. 1980). After a strong El Niño event in 1982 through 1983, short-finned pilot whales virtually disappeared from this region, and despite increased survey efforts along the entire U.S. West Coast, few sightings were made from 1984 through 1992 (Green et al. 1992, Carretta and Forney 1993). Approximately nine years after virtual disappearance of short-finned pilot whales following the 1982 through 1983 El Niño, they appeared to have returned to California waters, as indicated by an increase in sighting records, as well as, incidental fishing mortality (NMFS, unpublished data; Julian and Beeson, in press). Based on potential fishing interactions this species is managed as one stock in the waters of California, Oregon and Washington. The population size is estimated as 1,004 animals, but until movement contributed to environmental factors are better documented, no inferences can be drawn regarding trends in abundance of short-finned pilot whales off California, Oregon, and Washington (Barlow et al. 1997).

### **B.2.1.22 Pygmy Sperm Whale**

Pygmy sperm whales (*Kogia breviceps*) are distributed throughout deep waters and along the continental slopes of the North Pacific and other ocean basins. Sightings along the U.S. West Coast have been rare, probably due to their pelagic distribution and cryptic behavior (Barlow et al. 1997). Based on potential fishery interactions, this species is managed as a single stock in the waters off California, Oregon and Washington. The population abundance is estimated at 3,145 animals for this species, but is considered conservative as it is generated from ship surveys of only California waters (Barlow et al. 1997). Insufficient data are available to evaluate potential trends in abundance of this species.

### **B.2.1.23 Dwarf Sperm Whale**

Dwarf sperm whales (*Kogia simus*) are distributed throughout deep waters and along the continental slopes of the North Pacific and other ocean basins. Along the U.S. West Coast, no at sea sightings of this species have been reported, although strandings have been recorded in California on several occasions (Barlow et al. 1997). It is unclear whether records of dwarf sperm whales are so rare because they are not regular inhabitants of this region, or merely because of their cryptic habits and offshore distribution. No information is available to estimate the population size of dwarf sperm whales off the U.S. West Coast, and the lack of sightings or strandings records since 1981 makes it unclear whether their current distribution includes this region (Barlow et al. 1997).

## Appendix B

### B.2.2 Seabirds

Seabirds are plentiful in Alaska, owing to its productive marine waters and abundant nesting habitat. Approximately 50 million seabirds of 38 species nest in more than 1,600 colonies. Approximately 12 million breeding seabirds at 20,000 colonies occur in the Gulf of Alaska. In addition up to 50 million shearwaters and three albatross species feed in Alaskan waters but breed elsewhere. Seabirds nest on steep seacoasts or remote islands and spend up to 80 percent of their lives at sea. Food is obtained at sea by picking prey from the surface or by diving and pursuing it underwater.

Seabird population trends are largely determined by forage fish availability (Birkhead and Furness 1985). Breeding failure can result when adults lack sufficient energy reserves to complete a nest, lay eggs, or complete incubation, or when they cannot feed the nestlings adequately (Kuletz 1983; Baird 1990; Murphy et al. 1984, 1987; Springer 1991). The most serious non-food threat to seabird populations in Alaska has been (and remains) the introduction of alien predators, both foxes (Bailey 1993) and rats that might be introduced from vessels (Loy 1993).

Some seabird populations in the Bering Sea, Aleutian Islands, and Gulf of Alaska regions have declined during part or all of the past two decades (reviewed in Hatch and Piatt 1995; National Research Council 1996). Most declines were concentrated on islands of the southeastern Bering Sea and in the northern Gulf of Alaska. Declining populations in the northern Gulf of Alaska are black-legged kittiwakes, murrelets, pigeon guillemots, and marbled murrelets (Hatch et al. 1993; Klosiewski and Laing 1994; Kuletz 1996; Oakley and Kuletz 1996; Piatt and Anderson 1996). These declines probably began before the Exxon Valdez oil spill.

Approximately 4.5 million seabirds are estimated to reside and nest in the contiguous West Coast of the United States (Strategic Assessment Branch, NMFS, 1990). The size and diversity of the breeding seabird community in this region is reflective of nearshore prey conditions; subtropic waters within the California Bight; large estuaries at San Francisco Bay, Columbia River, and Grays Harbor-Willapa Bays; complex tidal waters of Puget Sound; and the variety of nesting habitats used by seabirds throughout the region, including islands, mainland cliffs, old-growth forests and artificial structures.

Every area over the continental shelf harbors dense concentrations of birds during the year. However, a few locations stand out prominently. The major colony complexes are located in the Channel Islands and Farallon Islands off California, southern and northern Oregon, and along the Olympic Peninsula of Washington (Minerals Management Service 1992 and Carter et al. 1998). Offshore of these sites, nesting birds foraged in dense aggregations to about 50-kilometer radius. Foraging areas differ somewhat for each species. Petrels, shearwaters, and alcids commonly use shelf-edge banks and the broad shelf areas foraged by shearwaters, gulls, murrelets, and auklets. These seabird populations generally feed upon zooplankton, small schooling fish, and squid.

Overall abundance has remained stable or increased for most species of seabirds in recent years (Carter et al. 1998). Some species have experienced declines in localized areas as a result of habitat destruction, human interaction, predation, and oil spills. All populations have fluctuated in response to El Niño conditions and experienced lower productivity and some degree of colony abandonment during intense El Niño events (e.g., 1982 through

1983 and 1992 through 1993). The major exception to this trend would be the common murre (*Uria aalge*) that is the dominant member of the breeding seabird community on the West Coast. This species declined substantially after the 1982 through 1983 El Niño event and has yet to recovery in central California and Washington. The primary factors thought to be precluding their recovery is the combined effects of high mortality from gillnet fishing and oil spills, plus poor reproduction during subsequent El Niño events (Carter et al. 1998).

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