

Vandenberg Air Force Base (ENSR International, 2001).

Habitat and Marine Mammals Affected by the Activity

The marine mammal species likely to be harassed incidental to harbor activities at south VAFB are the Pacific harbor seal and the California sea lion. The most recent estimate of the Pacific harbor seal population in California is 30,293 seals (Forney et al., 2000). From 1979 to 1995, the California population increased at an estimated annual rate of 5.6 percent. The total population of harbor seals on VAFB is now estimated to be 1,040 (775 on south VAFB) based on sighting surveys and telemetry data (SRS Technologies, 2001).

The daily haul-out behavior of harbor seals along the south VAFB coastline is dependent on time of day rather than tide height. The highest number of seals haul-out at south VAFB between 1100 through 1700 hours. In addition, haul-out behavior at all sites seems to be influenced by environmental factors such as high swell, tide height, and wind. The combination of all three may prevent seals from hauling out at most sites. The number of seals hauled out at any site can vary greatly from day to day based on environmental conditions. Harbor seals occasionally haul out at a beach 76.2 m (250 ft) west of the south VAFB harbor and on rocks outside the harbor breakwater where Boeing will be conducting Delta Mariner operations, cargo loading, dredging activities, and reef enhancement activities. The maximum number of seals present during past dredging of the harbor was 43, with an average of 21 seals sighted per day. The harbor seal pupping site closest to south VAFB harbor is at Rocky Point, approximately 1.6 km (1 mi) north.

Several factors affect the seasonal haul-out behavior of harbor seals including environmental conditions, reproduction, and molting. Harbor seal numbers at VAFB begin to increase in March during the pupping season (March to June) as females spend more time on shore nursing pups. The number of hauled-out seals is at its highest during the molt which occurs from May through July. During the molting season, tagged harbor seals at VAFB increased their time spent on shore by 22.4 percent; however, all seals continued to make daily trips to sea to forage. Molting harbor seals entering the water because of a disturbance are not adversely affected in their ability to molt and do not endure thermoregulatory stress. During pupping and molting season, harbor seals at the south VAFB sites expand into haul-out

areas that are not used the rest of the year. The number of seals hauled out begins to decrease in August after the molt is complete and reaches the lowest number in late fall and early winter.

During the wharf modification activity in June–July 2002, California sea lions were observed hauling out in small numbers. Although this is considered to be an unusual occurrence and is possibly related to fish schooling in the area, Boeing included sea lions in their request.

California sea lions range from British Columbia to Mexico. The minimum U.S. population estimate for California sea lions is 109,854 individuals. Since 1983, the population has grown at a rate of 5.0–6.2 percent annually. A 1985–1987 population survey indicated that most individuals on the Northern Channel Islands were on San Miguel Island, with the population ranging from 2,235 to over 17,000. The largest numbers of California sea lions in the VAFB vicinity occur at Lion Rock, 0.4 mi (0.64 km) southeast of Point Sal. This area is approximately 1.5 mi (2.41 km) north of the VAFB boundary. At least 100 sea lions can be observed during any season at this site. The Point Arguello beaches and the rocky ledges of South Rocky Point on south VAFB are haulout areas that may be used by California sea lions. The maximum number of sea lions seen hauling out during the recent wharf modification was six, daily counts ranging from 1 to 6 animals.

During the breeding season, most of California sea lions inhabit southern California and Mexico. Rookery sites in southern California are limited to San Miguel Island and to the southerly Channel Islands of San Nicolas, Santa Barbara, and San Clemente. Breeding season begins in mid-May, occurring within 10 days of arrival at the rookeries. Molting occurs gradually over several months in the late summer and fall. Because the molt is not catastrophic, the sea lions can enter the water to feed.

Male California sea lions migrate annually. In the spring they migrate southward to breeding rookeries in the Channel Islands and Mexico, then migrate northward in the late summer following breeding season. Females appear to remain near the breeding rookeries. The greatest population on land occurs in September and October during the post-breeding dispersal and although many of the sea lions, particularly juveniles and sub-adult and adult males, may move north away from the Channel Islands.

Small groups of sea lions have been observed heading south along the VAFB coastline each year in April and May. In

August, large groups of 25 to over 300 sea lions can be seen migrating north. Hauled out juvenile sea lions, as well as harbor seals, can be observed along the South Base sites in July, August, and September. Starving and exhausted subadult sea lions are also fairly common on the central California beaches during July and August.

Other marine mammal species are known to occur infrequently along the south VAFB coast during certain times of the year and are unlikely to be harassed by Boeing's activities. These four species are: the northern elephant seal, the northern fur seal, Guadalupe fur seal (*Arctocephalus townsendi*), and Steller sea lions (*Eumetopias jubatus*). Northern elephant seals may occur on VAFB but do not haul out in the harbor area. Northern fur seals, Guadalupe fur seals, and Steller sea lions occur along the California coast and Northern Channel Islands but are not likely to be found on VAFB. Descriptions of the biology and local distribution of these species can be found in the application as well as other sources such as Stewart and Yochem (1994, 1984), Forney et al. (2000), Koski et al. (1998), Barlow et al. (1993), Stewart and DeLong (1995), and Lowry et al. (1992). NMFS Stock Assessments can be viewed at: http://www.NMFS.noaa.gov/pr/PR2/Stock_Assessment_Program/sars.html. Please refer to those documents for information on these species.

Potential Effects of Activities on Marine Mammals

Acoustic and visual stimuli generated by the use of heavy equipment during the *Delta Mariner* and off-loading operations, dredging, and kelp habitat mitigation, as well as the increased presence of personnel, may cause short-term disturbance to harbor seals and California sea lions hauled out along the beach and rocks in the vicinity of the south VAFB harbor. This disturbance from acoustic and visual stimuli is the principal means of marine mammal taking associated with these activities. Based on the measured sounds of construction equipment, such as might be used during Boeing's activities, sound levels from all equipment drop to a maximum level of 95 dB A-weighted within 50 ft (15.2 m) of the sources. In contrast, the ambient background noise measured approximately 76.2 m (250 ft) from the beach was estimated to be 35–48 dB A-weighted (Acentech, 1998; EPA, 1971).

Pinnipeds sometimes show startle reactions when exposed to sudden brief sounds. An acoustic stimulus with sudden onset (such as a sonic boom)