

may be analogous to a "looming" visual stimulus (Hayes and Saif, 1967), which may elicit flight away from the source (Berrens *et al.*, 1988). The onset of operations by a loud sound source, such as the elevating platform transporter during CBC off-loading procedures, may elicit such a reaction. In addition, the movements of cranes and dredges may represent a "looming" visual stimulus to seals hauled out in close proximity. Seals and sea lions exposed to such acoustic and visual stimuli may either exhibit a startle response and/or leave the haul-out site.

According to the MMPA, if harbor activities disrupt the behavioral patterns of harbor seals, these activities would take marine mammals by Level B harassment. In general, if the received level of the noise stimulus exceeds both the background (ambient) noise level and the auditory threshold of the animals, and especially if the stimulus is novel to them, there may be a behavioral response. The probability and degree of response will also depend on the season, the group composition of the pinnipeds, and the type of activity in which they are engaged. Minor and brief responses, such as short-duration startle or alert reactions, are not likely to result in disruption of behavioral patterns, such as migration, nursing, breeding, feeding, or sheltering (i.e., Level B harassment) and would not cause serious injury or mortality to marine mammals.

On the other hand, startle and alert reactions accompanied by large-scale movements, such as stampedes into the water, could result in injury of individuals and would be considered a take by harassment. In addition, such large-scale movements by dense aggregations of marine mammals or on pupping sites could potentially lead to takes by serious injury or death. However, there is no potential for large-scale movements leading to serious injury or mortality near the south VAFB harbor, because on average the number of harbor seals hauled out near the site on average is less than 30 and there is no pupping at nearby sites. The effects of the harbor activities are expected to be limited to short-term startle responses and localized behavioral changes.

For a further discussion of the anticipated effects of the planned activities on harbor seals in the area, please refer to the application and ENSR International's 2001 Final Environmental Assessment. Information in the application and referenced sources is preliminarily adopted by NMFS as the best information available on this subject.

Numbers of Marine Mammals Expected to Be Harassed

Boeing estimates that a maximum of 43 harbor seals per day may be hauled out near the south VAFB harbor, with a daily average of 21 seals sighted when tidal conditions were favorable during previous dredging operations in the harbor. Considering the maximum and average number of seals hauled out per day, assuming that the seals may be seen more than once, and using a maximum total of 83 operating days in 2003–2004, NMFS estimates that 145 to 623 Pacific harbor seals may be subject to Level B harassment, as defined in 50 CFR 216.3.

During wharf modification activities, a maximum of six California sea lions were seen hauling out in a single day, averaging between one and six sea lions each day. Based on its own calculations, NMFS believes that a total of 100 California sea lions, 10 northern elephant seals, and 5 northern fur seals may be subject to Level B harassment, as defined in 50 CFR 216.3, because they may be in nearby waters.

Possible Effects of Activities on Marine Mammal Habitat

Boeing anticipates no loss or modification to the habitat used by Pacific harbor seals or California sea lions that haul out near the south VAFB harbor. The harbor seal and sea lion haul-out sites near south VAFB harbor are not used as breeding, molting, or mating sites; therefore, it is not expected that the activities in the harbor will have any impact on the ability of Pacific harbor seals or California sea lions in the area to reproduce.

Boeing does anticipate unavoidable kelp removal during dredging. This habitat modification will not affect the marine mammal habitat. However, Boeing will mitigate for the removal of kelp habitat by placing 150 tons of rocky substrate in a sandy area between the breakwater and the mooring dolphins to enhance an existing artificial reef. This type of mitigation was implemented by the Army Corps of Engineers following the 1984 and 1989 dredging. A lush kelp bed adjacent to the sandy area has developed from the efforts. The substrate will consist of approximately 150 sharp-faced boulders, each with a diameter of about 2 ft (0.61 m) and each weighing about one ton. The boulders will be brought in by truck from an off-site quarry and loaded by crane onto a small barge at the wharf. The barge is towed by a tugboat to a location along the mooring dolphins from which a small barge-mounted crane can place them into the sandy area. Boeing plans

to perform the reef enhancement in conjunction with the next maintenance dredging event in order to minimize cost and disturbances to animals. Noise will be generated by the trucks delivering the boulders to the harbor and during the operation of unloading the boulders onto the barges and into the water.

Possible Effects of Activities on Subsistence Needs

There are no subsistence uses for Pacific harbor seals in California waters, and, thus, there are no anticipated effects on subsistence needs.

Mitigation

To reduce the potential for disturbance from visual and acoustic stimuli associated with the activities Boeing will undertake the following marine mammal mitigating measures:

(1) If activities occur during nighttime hours, lighting will be turned on before dusk and left on the entire night to avoid startling harbor seals at night.

(2) Activities should be initiated before dusk.

(3) Construction noises must be kept constant (i.e., not interrupted by periods of quiet in excess of 30 minutes) while harbor seals are present.

(4) If activities cease for longer than 30 minutes and harbor seals are in the area, start-up of activities will include a gradual increase in noise levels.

(5) A qualified marine mammal observer will visually monitor the harbor seals on the beach adjacent to the harbor and on rocks for any flushing or other behaviors as a result of Boeing's activities. If flushing results, then the activities suspected of causing the seals to enter the water will be delayed until the seals leave the area.

(6) The *Delta Mariner* and accompanying vessels will enter the harbor only when the tide is too high for harbor seals to haul-out on the rocks and the vessel will reduce speed 1.5 to 2 knots once the vessel is within 3 mi (4.83 km) of the harbor. The vessel will enter the harbor stern first, approaching the wharf and dolphins at less than 0.75 knot.

(7) As alternate dredge methods are explored, the dredge contractor may introduce quieter techniques and equipment.

Monitoring

As part of its 2002 application, Boeing provided a proposed monitoring plan for assessing impacts to harbor seals from the activities at south VAFB harbor and for determining when mitigation measures should be employed.