



ENVIRONMENTAL EFFECTS ON LISTED AND SENSITIVE SPECIES

GRAYS HARBOR NAVIGATION IMPROVEMENT PROJECT

The impact analysis presented in the Supplemental Environmental Impact Statement for the Grays Harbor Navigation Improvement Project (Project) focused on impacts on the species in the action area listed as endangered or threatened under the Endangered Species Act. It also addressed impacts on marine mammals and Dungeness crab.



Southern Eulachon (*Thaleichthys pacificus*), Threatened

Adult eulachon present in Grays Harbor during inner harbor dredging and placement activities are unlikely to be affected because they are mobile enough to avoid the clamshell bucket. Juvenile eulachon present during spring hopper dredging in the outer harbor could become entrained; however, this impact is unlikely given the small area being dredged and the small numbers of larval eulachon potentially present in the harbor as the result of minor spawning events. Given the timing, location, and duration of dredging and placement activities and the low likelihood of eulachon presence, the effects on eulachon are considered insignificant.



Marine Mammals

Several species of marine mammals can be found in Grays Harbor or the adjacent Pacific Ocean waters. The most likely occurring marine mammals are harbor seals and sea lions. The majority of known haulouts in Grays Harbor for seals and sea lions are located away from the navigation channel, so disturbance of resting individuals would not occur. Underwater noise levels at the standard reference distance of 33 feet are below the disturbance thresholds for all marine mammals, so feeding and traveling individuals would not experience disturbance. For these reasons, potential effects on marine mammals in Grays Harbor are considered insignificant.

Marine mammal species listed as endangered or threatened under the Endangered Species Act are extremely unlikely to occur in the Grays Harbor navigation channel or the harbor proper; therefore, the proposed dredging activities, including vessel traffic, are unlikely to affect these species.

Dungeness Crab

The Corps uses the University of Washington School of Fisheries Dredge Impact Model to define crab population dynamics and dredge impacts and to select dredging gear type, volume dredged, and dredging season and location (Figure 1).

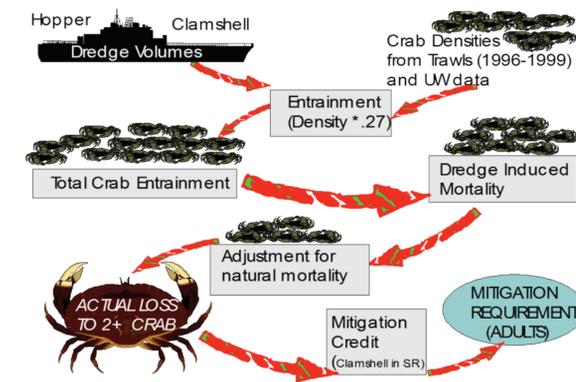


Figure 1
How the Dredge Impact Model Estimates Impacts on and Mitigation Requirements for Dungeness Crab

The 1998 Revised Crab Mitigation Strategy Agreement (RCMSA) refined avoidance and mitigation methods in light of several years of biological monitoring, shell placement, and dredging experience. The RCMSA emphasizes impact avoidance by limiting dredging in the inner harbor reaches to clamshell dredging and to established work windows. Potential impacts on Dungeness crabs from dredged material placement include burial effects, toxic effects, and direct effects on crab fishing. Activities are scheduled to avoid times when large numbers of crabs would be present at the placement sites and dredge sites. Inner harbor reaches are dredged and material placed from July 16 to February 14, and the outer harbor reaches are dredged and material

placed primarily from April to May. Any crabs present would be expected to easily escape from or avoid the placement sites during placement activities, and crabs would be expected to recolonize the area within a relatively short period of time.

The vast majority (98%) of the dredged material from Grays Harbor is uncontaminated and, therefore, suitable for open-water placement. Thus, the potential for placed material to be toxic to crabs is considered insignificant.

The Corps actively coordinates with tribal and local commercial crab fishers to avoid active crab pot sites for all dredging and placement activities. Thus, the direct effect on crab fishing is considered insignificant.

Although the project will minimize impacts on crabs, some crab mortalities are expected to occur. Impacts on the population as a whole are anticipated to be minimal.



Southern Green Sturgeon (*Acipenser medirostris*), Threatened

Southern green sturgeon present in Grays Harbor during dredging activities could be at risk of entrainment; however, this species is unlikely to inhabit the lower salinity reaches of the inner harbor where dredging would occur and would likely only be present in low numbers during the dredging period. Moreover, entrainment of sturgeon is rare. Adult or subadults may be present in placement sites during placement, but would be mobile enough to avoid the discharge fields and suspended sediments created. Project activities could change prey availability, but would not be of a magnitude or extent to appreciably diminish forage resources in the action area. Potential effects on green sturgeon are considered insignificant.



Bull Trout (*Salvelinus confluentus*), Threatened

Temporary water quality effects from dredging and placement activities in Grays Harbor could affect bull trout foraging and migrating in the action area; however, given the locations, timing, and methods of the activities, and implementation of conservation measures, very few, if any, bull trout individuals would be exposed to these effects. Dredging and placement activities could cause minor impacts on forage fish and eelgrass, but are not expected to have a measurable effect on forage fish abundance in the action area. Potential effects on bull trout are considered insignificant.



Chinook Salmon (*Onchorhynchus tshawytscha*), Threatened

The Columbia River Chinook salmon evolutionary significant unit is potentially present in Grays Harbor. Turbidity from the dredging and placement activities in Grays Harbor could affect Chinook salmon; however, the turbidity is expected to be of short duration and, to the extent that salmonids are present in the affected areas, they are expected to be of sufficient size to avoid affected waters. Placement of dredged material in Half Moon Bay has the most potential to affect juvenile salmonids; however, the dredge material would be released a number of feet below the water's surface, avoiding the portion of the water column typically occupied by juvenile salmon. Moreover, the dredge material is composed predominantly of larger-grained sand that would result in low suspended sediment concentrations. Additionally, Columbia River juvenile salmonids that could be present in the action area are likely of a size that studies have shown to be more tolerant of suspended sediment. Potential effects on Chinook salmon are considered insignificant.



Western Snowy Plover (*Charadrius alexandrius nivosus*), Threatened

Dunegrass in the Damon Point area provides critical nesting habitat for the western snowy plover. Based on the distance of dredging and placement activities from western snowy plover habitat and the maintenance of suitable habitat conditions at Damon Point since the species was listed, changes in sediment transport and deposition in Grays Harbor are not expected to have measurable effects on nesting habitat. Potential effects on western snowy plover are considered insignificant.



Streaked Horned Lark (*Eremophila alpestris strigata*), Threatened

Damon Point and Oyhut Wildlife Area provide the only suitable nesting habitat for streaked horned lark in Grays Harbor. The Project is unlikely to have a measurable effect on the streaked horned lark because suitable habitat for the lark does not occur within the area affected by dredging and placement activities. The Project, however, may have a minimal effect on the coastal sand budget, although the sand budget has already been altered and influenced by other events, independent of the Project. Therefore, potential effects on critical habitat for the streaked horned lark at Damon Point and Oyhut Wildlife Area are considered insignificant.