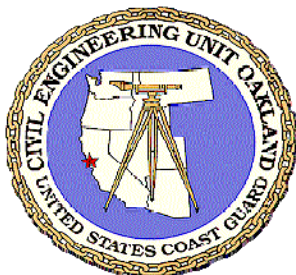




**Biological Assessment  
For  
Shoreline Stabilization  
At Station Siuslaw River  
Florence, Oregon**

**February 2012**



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*Appendix B* Species Lists

# Acronyms

BA	Biological Assessment
BMPs	best management practices
cy	cubic yards
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
LWD	large woody debris
MHHW	mean higher high water
MLLW	mean lower low water
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NM	Nautical Miles
NMFS	National Marine Fisheries Service
NTU	nephelometric turbidity units
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
PFMC	Pacific Fishery Management Council
PCEs	primary constituent elements
TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service

# Executive Summary

This Biological Assessment (BA) was prepared for the United States Coast Guard (USCG) in accordance with Section 7(c) of the Endangered Species Act (ESA) to address the potential effects of the proposed shoreline stabilization project (project) on federally listed fish and wildlife species and their habitats. Conservation measures identified in this BA are intended to avoid and minimize potential adverse effects of the proposed action. The BA also includes an assessment of the potential project effects on Essential Fish Habitat (EFH), as required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

The project is to stabilize the shoreline at USCG Station Siuslaw River with a riprap revetment along the shoreline of the Station property to prevent future shoreline erosion and slow the rate of shoreline retreat. In the subtidal area, some fill would be required to replace eroded material and create a stable slope. The ESA requires federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or their critical habitats. USCG prepared this BA to determine the potential effects of the proposed project on ESA-listed species and their habitats and assist with the consultation process. Potential effects were analyzed based on a review of plans for the proposed action, an on-site evaluation of existing habitat conditions, and data on the current and historical distributions of each species. Based on this review, determinations of effects were made for the proposed project.

The Oregon Coast coho salmon evolutionarily significant unit (ESU) and two other ESA-listed fish species, green sturgeon and eulachon, may occur within the project action area. Coho salmon migrate through the action area on their way upstream to spawn in the Siuslaw River or its tributaries. Coho salmon and eulachon could also rear in the action area as juveniles. Although this rearing stage would likely be limited to the juvenile outmigration period, typically from February through July, some juvenile coho salmon may rear in or near the action area throughout the year. Green sturgeon could potentially be found foraging within the action area in June through October. Marbled murrelets may occur in the action area during the nesting season from April to September. Killer whales have been observed in the action area in the summer, and Steller sea lion could occur in the action area throughout the year.

The ESA- listed species expected to occur in the action area include:

- Oregon Coast coho salmon (*Oncorhynchus kisutch*) - Threatened, and critical habitat
- Southern DPS of North American green sturgeon (*Acipenser medirostris*) - Threatened
- Eulachon (*Thaleichthys pacificus*) - Threatened
- Marbled Murrelet (*Brachyramphus marmoratus*) - Threatened
- Southern Resident DPS of Killer Whale (*Orcinus orca*) - Endangered
- Eastern DPS of Steller sea lion (*Eumetopias jubatus*) - Threatened

Shoreline and in-water work would be completed from a barge either anchored along the shoreline or fixed to the river bottom with spuds. Due to river currents and the constraints of working around the existing structures, construction could take 11 weeks and would be done between October 1 and February 15. The majority of work would be conducted during the approved in-water work period for the Siuslaw River estuary; November 1- February 15. Construction during the winter months can often take longer due to inclement weather. In addition, getting construction equipment into position may be difficult during winter months due to the challenges of transporting equipment and materials via barge across the river bar. In an effort to reduce the necessary construction duration and avoid winter storms that may prevent the work from proceeding, USCG would request an exemption to the approved in-water work period from the National Marine Fisheries Service (NMFS) and the Oregon Department of Fish and Wildlife (ODFW) to allow work to commence on October 1 due to weather considerations.

Potential direct effects to listed fish species and their habitats from the construction activities may include behavioral changes associated with short-term and localized increases in turbidity and reductions in benthic invertebrate production. Juvenile coho salmon and eulachon could be present in the project action area during construction. Turbidity effects would be short-term and loss of benthic prey would occur in a localized area where the riprap is placed. These localized effects are not likely to result in significant adverse effects to feeding behavior, use of preferred habitat, or migration behavior of any listed species. Adult coho present in the action area during the construction would be expected to move away from construction disturbance.

Given the lack of shallow nearshore habitat in the action area for juvenile salmonids, the short-term and localized nature of the proposed action which is not likely to result in significant adverse effects to feeding behavior, use of preferred habitat, or migration behavior, and the adherence to the majority of the in-water work window when few fish are expected to be present, the likelihood of adverse effects is low. Therefore, the proposed project “**may affect**” but is “**not likely to adversely affect**” the Oregon Coast coho salmon ESU and designated critical habitat for the Oregon Coast coho salmon ESU present in the action area.

The proposed action will have “**no effect**” on eulachon, green sturgeon, marbled murrelet, or killer whale, as these species would not be expected to be in the vicinity of the action area during construction. The proposed action will have “**no effect**” on Steller sea lion, as individuals of this species would be expected to easily avoid or move away from the action area if they are present during construction.

No significant indirect, cumulative, interrelated, or interdependent effects are associated with the proposed action.



## Essential Fish Habitat

Based on consideration of the EFH requirements for Pacific Coast salmon, groundfish, and coastal pelagic species, the potential direct, indirect, and cumulative effects of the proposed action are *“not likely to adversely affect”* identified EFH for Pacific salmon, groundfish, or coastal pelagic species. The implementation of the conservation measures described in section 3.3 is expected to minimize impacts to EFH for these species, and no significant long-term effects to EFH are anticipated.

# Section 1

## Introduction

The purpose of this Biological Assessment (BA) is to review the proposed shoreline stabilization project (project) by the U.S. Coast Guard (USCG) at Station Siuslaw River in sufficient detail to determine if the proposed action may affect any threatened, endangered, or candidate fish or wildlife species. Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure that their actions do not jeopardize listed species or their habitats.

### 1.1 Project Proponent and Federal Nexus

The Project Proponent is USCG, which owns and operates Station Siuslaw River on the Siuslaw River in Florence, Oregon. As a federal agency, the USCG is required to coordinate with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on decisions that may affect listed species under Section 7 of the Endangered Species Act (ESA). The proposed project will also require a U.S. Army Corps of Engineers (USACE) permit. The federal permit action by USACE would also constitute a federal nexus, requiring Section 7 coordination. The USACE may rely on the results of the Section 7 coordination initiated by USCG.

### 1.2 Project Purpose

The purpose of the project is to stabilize the eroding shoreline to maintain operational functionality of the Station infrastructure to allow the Coast Guard to meet its mission responsibilities in the Siuslaw River. Erosion of the shoreline is causing both a loss of bottom material (river bottom retreat) and loss of the embankment (shoreline retreat). In 2011, USCG prepared an erosion study, titled *Final Preliminary Erosion Control Study*, to identify causes and possible solutions to the coastal erosion that is affecting Station Siuslaw River (USCG 2011a). The findings of the Study indicate that erosion is primarily part of a natural meandering process that has been accelerated by alterations of the shoreline in the vicinity, including groins constructed on the opposite shoreline in 1974, the waterfront structures at the Coast Guard Station, and other stabilization improvements made in the vicinity of the site.

The shoreline retreat that is resulting from the stream erosion will continue to cut into the bluff toe and undercut the base of the embankment, resulting in sloughing and possibly a rotational failure of the hillside, negatively impacting station operations. It is expected that significant erosion will continue to occur for the foreseeable future unless mitigation is constructed (USCG 2011a). Adjacent property owners have installed riprap revetments upstream and downstream of the facility to slow the rate of shoreline retreat.

Loss of river bottom material has resulted in insufficient embedment of the piles supporting the boathouse, walkways and floating docks. The original piles for the boathouse were driven to approximately elevation -48 feet. By 2006 the boathouse

piles had lost from 25% to 50% of the original embedment and the structure had considerable movement. In 2008, 8 steel (“I-beam”) piles were driven along the boathouse sidewalls (4 each side) and tied to the superstructure to add lateral support. These piles were driven to depths ranging from -48 to -53 feet (USCG 2011a).

The boathouse walkway was originally constructed in 1961. In 2002, two of the support piles for the walkway were completely undercut due to scour. At that time a new walkway was constructed with new piles that provided 30 feet of embedment (USCG 2011a).

The floating docks were constructed in 1974 and 1997, with piles driven to a tip elevation of approximately -37 feet. Since then, the floating dock piles have lost approximately 3 feet or 15% of the original embedment. The debris boom was constructed in 1994 and the pile depths are unknown (USCG 2011a).

The upland facilities, which include administration and operations spaces, housing units, service buildings, and fuel tanks, are located above a sand bluff that slopes up steeply from the shoreline. The sand bluff has some evidence of shallow sloughing. Based on the erosion study (USCG 2011a), the underlying sedimentary rock base is eroding at a rate of approximately 1 to 2 feet per year and the vertical face of the rock has approached the toe of the bluff. As the toe erodes, significant sloughing of the sand bluff is expected to occur (USCG 2011a). Continued erosion is expected to cause the toe of the sand bluff to be significantly undercut, resulting in sloughing. At a minimum, this will disrupt access to the waterfront structures and upland operations.

The Station’s infrastructure both on and off-shore is essential to continued operations and mission readiness. Shoreline erosion threatens both access to and stability of the waterside facilities and the potential for failure of the sand bluff threatens the stability of landside infrastructure such as the fuel tanks at the top of the bluff.

### **1.3 Project Location and Setting**

The United States Coast Guard (USCG) operates Station Siuslaw River three miles northwest of Florence, Oregon. Station Siuslaw River is located at 4255 Coast Guard Road on the east side (right bank) of the Siuslaw River approximately 2 miles along the Federal Navigation Channel upstream from the mouth of the River (Latitude 44° 00’08” N, Longitude 124° 07’20” W; HUC 17100206) (Figure 1-1).

The Station’s primary mission is to provide search and rescue to commercial mariners, recreational boaters and surfers. The Station also conducts Maritime Law Enforcement, Marine Environmental Protection, Recreational Boating Safety, Short Range Aid to Navigation (ATON), Public Affairs, and Living Marine Resources Protection. The Station’s area of responsibility extends north from the Siuslaw River entrance 15.3 Nautical Miles (NM) to Cape Perpetua and South 8.7 NM to the Silt Coos River, and seaward 50 NM. The area of responsibility extends upriver to the Mapleton Bridge; approximately 20 NM from the river entrance. In 2010, the Station responded to 42 search and rescue cases.

Waterfront structures at Station Siuslaw River include a boathouse, walkway, floating docks, a debris screen, and navigational aids. The Station's upland facilities are located at the top of a sand bluff and include an access drive, walkway, and a fuel storage and utility services area (Figure 1-2). The Station has 33 men and women assigned to operate two 47' Motor Lifeboats and one 25' Response Boat Small 24 hours a day, 365 days a year. Photographs of the site are provided in Appendix A.

## 1.4 Project Description

The Proposed Action is to stabilize the shoreline at Station Siuslaw River. Activities will occur along the shoreline of the Station property. Along the shoreline, a riprap revetment would be constructed to prevent future shoreline erosion and slow the rate of shoreline retreat. In the subtidal area, some fill would be required to replace eroded material and create a stable slope.

The riprap revetment would be installed along the shoreline from one property line to the other, with an approximate length of up to 410 feet (Figure 1-3). The riprap would be laid over a rock underlayer that provides an even slope. The slope of the revetment would be 1V:2H (USCG 2011b). The top of the revetment would be up to 10 feet above the mean lower low water (MLLW). The width of the revetment would vary between approximately 12 feet and 45 feet and would be about 30 inches thick over the rock underlayer (Figure 1-4). Up to 2,500 cubic yards (cy) of ½ ton riprap, 1,300 cy of filter stone, and 1,200 cy of bedding material (gravel and on-site material composed primarily of sand) would be placed below mean higher high water (MHHW), which is 7.62 feet above MLLW at this location. The amount of material required to be placed below MHHW will be dependent on the actual bathymetry of the project area at the time of construction but is estimated to be up to 5,000 cy.

Existing vegetation along the shoreline would be avoided to the extent possible during construction. If construction results in loss of shoreline vegetation in areas larger than 5 square yards that are not under the riprap revetment, native riparian vegetation, including trees, shrubs, and herbaceous vegetation, would be replanted in these areas. No fertilizer would be used during replanting activities.

Shoreline and in-water work would be completed from a barge either anchored along the shoreline or fixed to the river bottom with spuds. Due to river currents and the constraints of working around the existing structures, construction could take 11 weeks and would be done between October 1 and February 15. The majority of work would be conducted during the approved in-water work period for the Siuslaw River estuary; November 1- February 15. The USCG would request an exemption to the approved in-water work period from NMFS and ODFW to allow work to commence on October 1 due to weather considerations.

Exemptions to the approved in-water work period have been granted for USACE's maintenance dredging operations, for example. USACE conducts annual dredging of the Siuslaw River to maintain the entrance, navigation channel, and turning basins to their federally authorized depths and widths by removing restricting shoals (USACE

2010). USACE conducts this maintenance dredging from April 1 to October 31 due to poor weather and ocean conditions during the rest of the year.

Construction would be conducted in accordance with an erosion and pollution control plan prepared by the construction contractor. The plan would identify best management practices (BMPs) to minimize erosion of soils and prevent spills and contaminants from entering the water. The following erosion and pollution control BMPs would be required of the construction contractor in compliance with the plan:

- Soil and vegetation disturbance would be confined to the minimum area and length of time necessary to complete the Proposed Action.
- All equipment used for in-water work will be clean and inspected daily prior to use to ensure that the equipment has no fluid leaks. Should a leak develop during use, the leaking equipment will be repaired immediately or removed from the project site immediately and not used again until it has been adequately repaired. At no time will fuels or oils be allowed to enter the river.
- Floating spill containment booms and absorbent booms will be maintained on board equipment to facilitate the cleanup of hazardous material spills. Containment booms and/or absorbent booms will be installed in instances where there is a potential for release of petroleum or other toxic substances. Employee spill prevention/response training would be conducted prior to start of construction.
- Construction waste, including debris, oils, fuels, or other hazardous materials generated, used, or stored during construction would be confined, removed, and disposed of properly.

### **1.4.1 Project Schedule**

The approved in-water work period for the Siuslaw River estuary is between November 1 and February 15. In an effort to reduce the necessary construction duration and avoid winter storms that may prevent the work from proceeding, the USCG is requesting an exemption to the approved in-water work period from NMFS and ODFW to allow work to commence on October 1. If the variance is approved, construction of the proposed project would occur between October 1 and February 15 and take 11 weeks to complete.

### **1.4.2 Consultation History**

No previous consultation has occurred for the proposed project.

## **1.5 Action Area**

For the analysis of the potential effects of the project on listed species, a project action area is identified. The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the

action” (50 CFR §402.02). Thus, observable or measurable effects of the project are not expected beyond the boundaries of the identified project action area.

The proposed action area for this project is comprised of a 500-foot radius within the aquatic area around the shoreline encompassing the extent of the riprap revetment (Figure 1-5). In its evaluation of the Port of Siuslaw Maintenance Dredging Project, which involved the dredging of a total of 70,000 cubic yards of material from the Siuslaw River marina from river mile 4.7 to 5.0, NMFS found that contributions to turbidity from dredging would be undetectable beyond a 300-foot radius of the dredge area (NMFS 2009a). Therefore, the 500-foot boundary of the action area is considered to be a conservative estimate of the predicted turbidity plume that might be created by the project.

# Section 2

## Presence/Status of Listed Species and/or Designated Critical Habitat in Project Area

### 2.1 Listed Species Present in Project Area

A list of threatened and endangered species and designated critical habitat which may occur in Lane County was obtained from the USFWS website (USFWS 2011a). A list of threatened and endangered marine species was obtained from the NMFS website (NMFS 2011a). Sources for species occurrence information are summarized in Table 2-1. Species lists are provided in Appendix B. Baseline watershed data were obtained primarily from ODEQ and ODFW.

**Table 2-1. Data and Data Sources for Information on Listed Species in the Project Vicinity**

Habitats	Agency/Data Source	Data Provided
Federally threatened and endangered plants, fish, and wildlife species	USFWS <a href="http://www.fws.gov/oregonfwo/Species/Lists/default.asp">http://www.fws.gov/oregonfwo/Species/Lists/default.asp</a>	One endangered bird, three threatened birds, two endangered marine reptiles, two threatened marine reptiles, two threatened fish, one endangered invertebrate, one threatened invertebrate, two endangered plants and one threatened plant species occur in Lane County. The two threatened fish species occur only inland and not within the project area.  In addition, candidate species include one mammal, one bird, and one amphibian.
Federally threatened, endangered, and proposed fish species	NMFS <a href="http://www.nwr.noaa.gov/Species-Lists.cfm">http://www.nwr.noaa.gov/Species-Lists.cfm</a>	One threatened salmonid fish species, six endangered marine mammals, and one threatened marine mammal occur off the Oregon Coast.
Critical habitat for federally threatened and endangered species	USFWS <a href="http://criticalhabitat.fws.gov/criticalhab/">http://criticalhabitat.fws.gov/criticalhab/</a> NMFS <a href="http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm">http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm</a>	Critical habitat for three threatened birds and one threatened fish is located near the project area. Critical habitat has also been designated for two threatened fish, one endangered invertebrate, one threatened invertebrate, one endangered plant, one threatened plant, one endangered marine mammal, and one threatened marine mammal. However, there is no designated critical habitat for these species within or near the project area.

This BA assesses the potential effects of the proposed project on eight species (and critical habitat for four of these species) and documents appropriate conservation measures to be included in the proposed action.

### 2.1.1 Fish

Three threatened fish species may occur within the project action area (Table 2-2). The presence of these species within the action area is described in the following paragraphs.

**Table 2-2. Federal Register Notices of Final Rules Listing Threatened and Endangered Species, Designated Critical Habitat or Protective Regulations-Fish**

Species	Status	Listings	Critical Habitat	Protective Regulations
<b>Coho salmon</b> ( <i>Oncorhynchus kisutch</i> )				
Oregon Coast ESU	Threatened	73 FR 7816 76 FR 35755	73 FR 7816	73 FR 7816
<b>Green sturgeon</b> ( <i>Acipenser medirostris</i> )				
Southern DPS	Threatened	71 FR 17757	74 FR 52300	74 FR 23822
<b>Eulachon</b> ( <i>Thaleichthys pacificus</i> )				
	Threatened	75 FR 13012	Not applicable	75 FR 13012

#### 2.1.1.1 Coho Salmon

The Oregon Coast coho salmon (*Oncorhynchus kisutch*) Evolutionary Significant Unit (ESU) was listed as threatened in 2011 (NMFS 2011b) and critical habitat was designated in 2008 (NMFS 2008). The ESU includes all naturally spawned populations of coho salmon in Oregon coastal streams south of the Columbia River and north of Cape Blanco, including the Cow Creek coho hatchery program.

Adult Oregon Coast coho salmon migrate through the action area on their way upstream to spawn. Peak migration occurs in October. Coho salmon could also occur in the action area as juveniles, primarily during the juvenile outmigration period, typically from February through July, with a peak from April to mid-May (Lawson *et al.* 2007). The action area is within designated critical habitat.

#### 2.1.1.2 Green Sturgeon

The North American green sturgeon (*Acipenser medirostris*) is known to forage in estuaries and bays ranging from San Francisco Bay to British Columbia (NMFS 2007). Adults live in oceanic waters, bays, and estuaries when not spawning.

The Southern distinct population segment (DPS) was listed as a threatened species in 2006 (NMFS 2006a) and critical habitat was designated in 2009 (NMFS 2009b). The southern DPS includes all spawning populations of green sturgeon south of the Eel River, principally including the Sacramento River spawning population (NMFS 2006a).



Green sturgeon are currently known to spawn in only three rivers: the Sacramento and Klamath rivers in northern California and the Rogue River in southern Oregon (Lindley et al 2008). The species may occur in estuaries from June through October (Moser and Lindley 2007). As such, low numbers of green sturgeon may occur in the action area during that time of year. NMFS has excluded the Siuslaw River estuary from the proposed designation of critical habitat for the southern DPS of green sturgeon (NMFS 2009b).

### 2.1.1.3 Eulachon

NMFS listed the Pacific eulachon (*Thaleichthys pacificus*) as threatened under the ESA in 2010 (NMFS 2010). The eulachon is a relatively small (up to 10 inches) anadromous fish that occurs only on the coast of northwestern North America, from northern California to southwestern Alaska (NMFS 2006b). They spawn mainly in the lower, tidally-influenced reaches of rivers, prior to the occurrence of full spring freshet.

Spawning occurs at varying depths from 1-25 feet on substrates ranging from silt, sand, or gravel to cobble and detritus, with sand being most common. Eggs do not adhere to sand immediately but drift downstream for a short time. Even after adherence, water velocity can move the sand grains farther downstream (NMFS 2006b). Newly hatched young are carried to the sea with the current where they feed mainly on copepod larvae and other plankton. After three to four years at sea, they return as adults to spawn. After spawning, the majority of eulachon die (NMFS 2006b).

The occurrence of eulachon in the Siuslaw River estuary has been documented, with potential for spawning (BRT 2010). Therefore, eulachon may occur in low numbers in early spring within the action area but are not likely to occur during the approved in-water work period (NMFS 2012) or the proposed construction period.

### 2.1.2 Birds

One threatened bird species has the potential to occur within the project action area (Table 2-3). Critical habitat has been designated for the species, and the project action area is located near designated critical habitat, as described in the paragraphs below.

**Table 2-3. Federal Register Notices of Final Rules Listing Threatened and Endangered Species, Designated Critical Habitat or Protective Regulations-Birds**

Species	Status	Listings	Critical Habitat	Protective Regulations
<b>Marbled murrelet (<i>Brachyramphus marmoratus</i>)</b>				
Washington/Oregon/California DPS	Threatened	57 FR 45328	71 FR 53838 74 FR 6852	57 FR 45328 71 FR 53838 74 FR 6852

### **2.1.2.1 Marbled Murrelet**

The marbled murrelet (*Brachyramphus marmoratus*) was listed as threatened in 1992 (USFWS 1992). Critical habitat was first designated in 1996 and proposed for revision in 2006 and 2008 (USFWS 2008a). At this time, the proposed revision has not been finalized and critical habitat for the murrelet remains unchanged from the 1996 designation (USFWS 2009).

Marbled murrelets spend the majority of their lives on the ocean, moving inland to nest from mid-April to late September. Marbled murrelets consume a diversity of prey species, including small fish and invertebrates, foraging by pursuit diving in waters generally up to 98 feet deep and up to 1.25 miles off-shore (USFWS 2006a).

Nesting habitat consists of mature and old-growth forests, with large core areas of old-growth, low amounts of edge habitat, reduced habitat fragmentation, proximity to the marine environment, and forests that are increasing in stand age and height (USFWS 2009). Nesting habitat must be located close enough to the marine environment for the birds to fly to and from nest sites to feed a chick at least once per day. Adults typically fly in (primarily at dawn and/or dusk) from feeding on the ocean, carrying one fish at a time (USFWS 2011b). Nests have been found inland from the coast up to a distance of 50 miles (USFWS 2009).

Suitable nesting habitat for the marbled murrelet occurs inland from the action area, within the Siuslaw National Forest. Critical habitat has been designated approximately five miles to the northeast and seven miles to the southeast of the action area (USFWS 2011b). Marbled murrelets could occur within the action area throughout the year. Murrelets could fly over the action area as they travel between nesting areas and foraging habitat offshore and they could land in the Siuslaw River estuary in the vicinity of the project.

### **2.1.3 Marine Mammals**

One threatened and one endangered marine mammal species have the potential to occur within in the project action area (Table 2-4). Critical habitat has been designated for both of these species, but the project area does not fall within designated critical habitat for any marine mammal species. Information on occurrence of these species within the action area is presented in the paragraphs below.

**Table 2-4. Federal Register Notices of Final Rules Listing Threatened and Endangered Species, Designated Critical Habitat or Protective Regulations-Marine Mammals**

Species	Status	Listings	Critical Habitat	Protective Regulations
<b>Killer whale (<i>Orcinus orca</i>)</b>				
Southern Resident DPS	Endangered	70 FR 69903	71 FR 69054 (not near project area)	70 FR 69903 71 FR 69054 76 FR 20870
<b>Steller Sea Lion (<i>Eumetopias jubatus</i>)</b>				
Eastern Distinct Population	Threatened	63 FR 24345	58 FR 45269 (not near project area)	63 FR 24345 55 FR 49204

### 2.1.3.1 Killer Whale

The Southern Resident DPS of the killer whale (*Orcinus orca*) was listed as endangered in 2005 (USFWS 2005). Critical habitat was designated in Washington state in 2006 (USFWS 2006b). There is no designated critical habitat in Oregon.

The Southern Resident DPS consists of three pods, identified as J, K, and L pods, that reside for part of the year in the inland waterways of Washington State and British Columbia (Strait of Georgia, Strait of Juan de Fuca, and Puget Sound), principally during the late spring, summer, and fall (USFWS 2006b). Pods visit coastal sites as far south as central California principally during the late spring, summer, and fall. During the late fall, winter, and early spring, the ranges and movements of the Southern Residents are less well known (USFWS 2006b). Killer whales have been observed in the action area by U.S. Coast Guard personnel as recently as summer 2011 (personal communication on August 30, 2011).

### 2.1.3.2 Steller Sea Lion

The Steller sea lion (*Eumetopias jubatus*) was listed by NMFS as threatened in 1990 (NMFS 1990). Critical habitat was designated in 1993 (NMFS 1993) and includes a 20 nautical-mile buffer around all major haul-outs and rookeries, as well as associated terrestrial, air, and aquatic zones, and three large offshore foraging areas. Two rookeries in southern Oregon are designated as critical habitat (NMFS 2011c).

Steller sea lions forage in pelagic waters near the shore for fish such as walleye pollock, herring, capelin, mackerel, rockfish, and salmon; and cephalopods such as squid and octopus. They also use terrestrial habitat as haul-out sites for periods of rest, molting, and as rookeries for mating and pupping during the breeding season. They forage and feed primarily at night (NMFS 2011c).

Steller sea lions may occur in low numbers in the action area; however, there are no known haul-out locations or rookeries in or near the action area. The nearest designated critical habitat to the action area is 80 miles south.

## 2.2 Listed Species Not Present in the Project Vicinity

In addition to the species discussed in the previous sections, the USFWS species list included several federally listed wildlife and plant species that are either considered to be extirpated from Oregon, or are not known to occur in areas potentially affected by the proposed action.

### **Birds:**

- Western snowy plover (*Charadrius alexandrinus nivosus*), threatened
- Northern spotted owl (*Strix occidentalis caurina*), threatened
- Short-tailed albatross (*Phoebastria albatrus*), endangered

### **Marine reptiles:**

- Loggerhead sea turtle (*Caretta caretta*), endangered
- Green sea turtle (*Chelonia mydas*), threatened
- Leatherback sea turtle (*Dermochelys coriacea*), endangered
- Olive (=Pacific) ridley sea turtle (*Lepidochelys olivacea*), threatened

### **Fish:**

- Oregon chub (*Oregonichthys crameri*), threatened
- Bull trout (*Salvelinus confluentus*), threatened

### **Invertebrates:**

- Fender's blue butterfly (*Icaricia icarioides fenderi*), endangered
- Oregon silverspot butterfly (*Speyeria zerene hippolyta*), threatened

### **Plants:**

- Willamette daisy (*Erigeron decumbens* var. *decumbens*), endangered
- Bradshaw's desert parsley (*Lomatium bradshawii*), endangered
- Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*), threatened

### **Candidate Species:**

- North American wolverine (*Gulo gulo luscus*)
- Streaked horned lark (*Eremophila alpestris strigata*)
- Oregon spotted frog (*Rana pretiosa*)

These species were identified by the USFWS as having the potential to occur in Lane County (see Appendix B) but are not known to occur within the action area, as described below.

Species lists provided by NMFS (see Appendix B) also included several marine mammal species not known to occur in the action area, as listed below.

**Marine mammals:**

- Humpback whale (*Megaptera novaeangliae*), endangered
- Blue whale (*Balaenoptera musculus*), endangered
- Fin whale (*Balaenoptera physalus*), endangered
- Sei whale (*Balaenoptera borealis*), endangered
- Sperm whale (*Physeter macrocephalus*), endangered

Species that are not expected to occur within the action area and which would not be affected by the proposed project are discussed below but not evaluated further in this BA.

### **2.2.1 Western Snowy Plover**

The western snowy plover was listed as threatened in 1993 (USFWS 1993). Critical habitat was designated in 2005 (USFWS 2005).

Western snowy plovers breed above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries (USFWS 2007). No suitable breeding or foraging habitat occurs within the action area. Critical habitat has been designated approximately four miles north of the action area at Heceta Beach (USFWS 2011c).

### **2.2.2 Northern Spotted Owl**

The Northern spotted owl was listed as threatened in 1990 (USFWS 1990). Critical habitat was first designated in 1992 and revised in 2008 (USFWS 2008b). This species inhabits structurally complex forests from southwest British Columbia through the Cascade Mountains and coastal ranges in Washington, Oregon, and California, as far south as Marin County. Spotted owls generally rely on mature and old-growth forests because these habitats contain the structures and characteristics required for nesting, roosting, and foraging, although they can disperse through highly fragmented forested areas (USFWS 2008c). Although they are known to nest, roost, and feed in a wide variety of habitat types, this species prefers older forest stands with dense canopy closure of mature and old-growth trees, abundant logs, standing snags, and live trees with broken tops (USFWS 2010a).

There is no suitable nesting, roosting, or foraging habitat in the action area. The nearest suitable habitat for Northern spotted owl is located east and southeast of the

action area, within the Siuslaw National Forest. Designated critical habitat within the Siuslaw National Forest is located approximately seven miles east of the action area (USFWS 2008b).

### **2.2.3 Short-tailed Albatross**

The short-tailed albatross was listed as endangered in 2000 (USFWS 2000a). The short-tailed albatross occurs throughout the North Pacific Ocean and north into the Bering Sea during the non-breeding season. Breeding colonies occur only on two Japanese islands, but several individuals have been regularly observed during the breeding season on Midway Atoll in the northwestern Hawaiian Islands (USFWS 2000a).

The short-tailed albatross is a frequent visitor to the productive waters in shelf break areas of the Northern Gulf of Alaska, Aleutians Islands, and Bering Sea. The species' marine habitat is characterized by coastal regions of upwelling and high productivity and expansive, deep water beyond the continental shelf. The likelihood of the species' presence in the action area is remote.

### **2.2.4 Marine Turtles**

The leatherback sea turtle was listed as endangered in 1970 (USFWS 1970). In 1978, the loggerhead sea turtle was listed as endangered, the green sea turtle as threatened, and the olive ridley sea turtle as threatened (USFWS and NMFS 1978). Critical habitat for the leatherback sea turtle was designated in 1978 (NMFS 1978) and 1979 (NMFS 1979) and is currently being reevaluated (NMFS 2011d).

Loggerhead, green, leatherback, and olive ridley sea turtles all depend on U.S. coastal waters in the Pacific Ocean for foraging and migratory habitat during certain stages of their life history. However, marine turtles have no breeding areas in Oregon and, except for leatherback turtles, are extremely rare in Oregon's nearshore habitats. Most leatherback sightings occur in marine waters within the coastal zone. Although sightings of marine turtles occur in Oregon, they are exceptionally rare (NMFS and USFWS 1998). Therefore, the potential for the presence of any sea turtle species within the action area is considered remote.

### **2.2.5 Whales (Excluding Killer Whale)**

Humpback, blue, fin, sei, and sperm whales are occasionally observed as migrants off the coast of Oregon (Oregon State Parks 2011). These species forage in deep water and are typically seen several miles offshore. The bar at the mouth of the Siuslaw River may be impassible to large whales or deter them from entering into the estuary. The likelihood that any whale species (excluding killer whales) would occur within the action area is considered very remote.

### **2.2.6 Oregon Chub**

The Oregon chub was listed as endangered in 1993, and then reclassified as threatened in 2010 (USFWS 2010b). Critical habitat was designated in 2010 (USFWS 2010c).

Oregon chub are endemic to the Willamette River Valley of western Oregon. They are found in slack water off-channel habitats such as beaver ponds, oxbows, side channels, backwater sloughs, low gradient tributaries, and flooded marshes. These habitats usually have little or no water flow, silty and organic substrate, and aquatic vegetation as cover for hiding and spawning. The average depth of Oregon chub habitat is typically less than six feet (USFWS 2011d).

Oregon chub occur inland within Lane County, but would not be expected to occur within the action area as it is out of the current or historical range for the species and does not support suitable habitat.

### **2.2.7 Bull Trout**

The bull trout was listed as threatened in the coterminous U.S. in 1999 (USFWS 1999). Critical habitat was designated in 2005 with a proposed revision in 2010 (USFWS 2010d).

Bull trout are more sensitive to increased water temperatures, poor water quality, and low flow conditions than many other salmonids. They live primarily in cold headwater lakes and streams and rivers that drain high mountainous areas (SalmonRecovery.gov 2009).

Bull trout occur inland in Lane County within the Willamette Basin. They are not known to occur within the Siuslaw River estuary and thus are not expected to be present in the action area.

### **2.2.8 Fender's Blue Butterfly, Kincaid's Lupine, and Willamette Daisy**

In 2000, USFWS listed Fender's blue butterfly and Willamette daisy as endangered and Kincaid's lupine as threatened (USFWS 2000b). Critical habitat was designated for these species in 2006 (USFWS 2006c). All three species are restricted primarily to native prairie in the Willamette Valley and are known currently from a few small remnants of a formerly widespread distribution. As such, these species do not occur within the action area.

### **2.2.9 Oregon Silverspot Butterfly**

The Oregon silverspot butterfly was listed as threatened and critical habitat designated in 1980 (USFWS 1980). The species occupies early successional, coastally-influenced grassland habitat that contains the caterpillar host plant, early blue violet (*Viola adunca*), adult nectar sources, and adult courtship areas (USFWS 2001).

Oregon silverspot butterfly populations currently occur at only six sites, two of which are in Lane County (Rock Creek-Big Creek and Bray Point) (USFWS 2001). The population at Rock Creek and Big Creek was the only known viable population of Oregon silverspot butterflies in 1980 and was designated as critical habitat. The critical habitat area comprises 437.5 acres, including 235 acres of meadow, shrubland, and forest administered by the Siuslaw National Forest. The population at Bray Point is located in three distinct forest openings on steep and predominantly south-facing slopes (USFWS 2001).

No suitable habitat for the Oregon silverspot butterfly occurs within the action area; therefore, this species' presence within the action area is considered very unlikely.

### **2.2.10 Bradshaw's Desert Parsley**

Bradshaw's desert parsley (also known as Bradshaw's lomatium) was federally listed as endangered in 1988 (USFWS 1988). No critical habitat has been designated.

This species occurs on seasonally saturated or flooded prairies, adjacent to creeks and small rivers in the southern Willamette Valley. The greatest concentrations of remaining sites where plants occur are in and adjacent to the Eugene, Oregon, metropolitan area (USFWS 2011e).

No known populations or suitable habitat for Bradshaw's desert parsley occur within the action area; therefore, this species does not occur within the action area.

### **2.2.11 North American Wolverine (Candidate)**

The North American wolverine became a federal candidate species in 2010 (USFWS 2011f). Wolverine habitat consists entirely of alpine, arctic, and sub-arctic regions. Snow cover during the spring is essential for females who use deep snow banks for denning throughout the pregnancy and weaning periods. Suitable wolverine habitat in Oregon is considered to be the high-elevation forests of the Cascade Range, the Blue Mountains, Wallowa Mountains, and Ochoco Mountains. There have been only six verified reports of sightings in Oregon since 1920. For these reasons, the potential for this species' presence within the action area is considered very remote.

### **2.2.12 Streaked Horned Lark (Candidate)**

The streaked horned lark became a federal candidate species in 2001 (USFWS 2011g). Habitat for the species consists of native prairies and grasslands. Streaked horned larks can also utilize a variety of human-altered habitats with sparse vegetation, such as plowed fields, grass seed fields, and fallow fields. They nest in grass seed fields, pastures, fallow fields and wetland mudflats. The action area does not provide suitable habitat for the streaked horned lark. Therefore, the likelihood for this species to occur within the action area is very low.



### **2.2.13 Oregon Spotted Frog (Candidate)**

The Oregon spotted frog became a federal candidate species in 2004 (USFWS 2011h). The species is highly aquatic, almost always found in or near a perennial body of water that includes zones of shallow water and abundant emergent or floating aquatic plants, which the frogs use for basking and escape cover. The species may occur inland in Lane County in suitable habitat within the Willamette National Forest (USFWS 2011h). The potential for the presence of Oregon spotted frog in the action area is considered very remote.

## **2.3 Critical Habitat**

Critical habitat is defined under Section 3(5)(A) of the ESA as: “the specific areas within the geographical area occupied by the species, at the time it is listed on which are found those physical or biological features that are essential to the conservation of the species and which require special management consideration or protection; and specific areas outside the geographical area occupied by the species at the time it is listed...upon determination by the Secretary that such areas are essential for the conservation of the species.” Once critical habitat is designated, Section 7 of the ESA requires federal agencies to ensure they do not fund, authorize, or carry out any action that will destroy or adversely modify that habitat. This requirement is in addition to the Section 7 requirement that federal agencies ensure their actions do not jeopardize the continued existence of listed species.

The only designated critical habitat within the action area is that for the Oregon Coast ESU of coho salmon.

### **2.3.1 Oregon Coast Coho Salmon**

The project action area occurs within designated critical habitat for the Oregon Coast ESU of coho salmon. In designating critical habitat, NMFS identified essential features including spawning sites, juvenile rearing areas and migration corridors, adult migration corridors, food resources, water quality and quantity, and riparian vegetation.

The primary constituent elements (PCEs) of critical habitat potentially found at the action area are those associated with estuarine rearing and freshwater migration. Major factors affecting PCEs in the Siuslaw estuary are altered channel morphology and stability, lack of large woody debris and other refugia, and increased water temperatures, as described below.

## **2.4 Affected Environment**

The environmental setting includes the general habitat conditions in the Siuslaw River estuary and the overall land use characteristics in the area that might affect aquatic or riparian habitats.

### **2.4.1 Watershed Conditions**

The Siuslaw Basin was historically one of the most productive anadromous fish producers in the Pacific Northwest. Early cannery records indicate that numbers of coho salmon in the Siuslaw were second only to the Columbia River. The average coho salmon numbers from 1889-1896 were 209,000 fish, compared to an average of just over 3,000 from 1990-1995 (Siuslaw Watershed Council 2002). The major basin factors responsible for the decline in the freshwater carrying capacity of the system include: timber harvest and road building on steep unstable slopes, diking and draining of wetlands, transportation arteries along and in riparian zones, and riparian timber harvest (Siuslaw Watershed Council 2002).

European settlement in the Siuslaw Basin began inland in the 1850s, as extensions of Willamette Valley settlement patterns. Wetlands were diked and drained for farmland, and riparian areas were cleared. Development at the mouth of the Siuslaw River did not occur until the late 1870s. A jetty was completed at the Siuslaw mouth in 1918, allowing large ships to access the estuary. Around the same time, a railroad connection to the Willamette Valley was completed, allowing for industrial scale logging in the watershed. Timber harvest and road building began in earnest in the 1950s. Roads and rail lines were often built on steep, unstable slopes, resulting in large debris flows (Siuslaw Watershed Council 2002).

Prior to the development of major roads and rail lines, logs were transported down the river to the estuary. Stream channels were cleared of debris to allow logs to move unimpeded downstream. "Splash dams", temporary log crib structures that backed up water, were often constructed to hold logs and then blown out using dynamite to release a torrent that carried the logs downstream. As a result, the river was scoured in many sections to bedrock (Siuslaw Watershed Council 2002).

Other alterations included the placement of wood pilings along the riverbanks in order to deflect logs from settling on off-channel wetlands or mudflats. In this way, large woody debris was removed from the system, further degrading habitat for salmon and other aquatic species (Siuslaw Watershed Council 2002).

### **2.4.2 Floodplain and Riparian Conditions**

The project area occurs in the Siuslaw River estuary, approximately two miles upstream of the river mouth. The estuary lies within the Heceta Head littoral cell, which extends for about 56 miles from Heceta Head south to Cape Arago. The coastal zone of this littoral cell consists of a 1 to 2 mile-wide plain covered by active and stabilized sand dunes backed by the mature upland topography of the Coast Range. The lower portion of the Siuslaw River is bordered by broad alluvial flats (USACE and USEPA 2010).

In the project area, some floodplain connectivity remains, but flood control projects and urbanization have reduced connectivity. Tidal marsh habitat has been greatly reduced. Riparian vegetation is patchy, with some areas consisting of steep slopes covered in dense vegetation and other areas consisting of relatively flat sandy beach

with patches of beach grass and bare ground (see Appendix A for photographs of the project site and vicinity).

The project action area is located along the east (right) bank of the estuary. At the Coast Guard Station, the shoreline is steep and densely vegetated with both deciduous and evergreen trees and shrubs. The shoreline slopes up to a sandy bluff where the Coast Guard Station buildings, fuel tanks, and other facilities are located. As discussed in Section 1, the shoreline is highly eroded in this area, resulting in undercut banks. The shoreline slopes steeply down to deeper water, offering little nearshore habitat in the form of aquatic vegetation, large woody debris, or other refugia. There are no side channels in the vicinity of the action area. Just downstream of the Station, the shoreline consists of a wide bedrock shelf that is underwater in high tide, sloping up to sandy bluff above. Upstream of the Station, the shoreline is steeply sloped and vegetated.

The west (left) bank of the estuary within the action area is bordered by undeveloped park lands that form the northernmost extent of the Oregon Dunes National Recreation Area. Vegetation adjacent to the west bank consists of dune grass with upland stands of conifers. Four groins were built to stabilize the shoreline in 1974 directly across from the project action area. The groins have resulted in stabilization and accretion of the shoreline on the west bank of the estuary, while shifting the main course of the river towards the opposite bank, in the location of the project action area (USCG 2011b).

### **2.4.3 Water Quality**

The mainstem Siuslaw River is on the Oregon Department of Environmental Quality (ODEQ) 303(d) list for dissolved oxygen (River Mile [RM] 5.7-105.9), temperature (RM 0-106), and fecal coliform (RM 5.7-105.9) (ODEQ 2011a). High temperatures are likely a result of the lack of riparian cover and are a stressor to salmonids in the watershed. A Total Maximum Daily Load evaluation has been initiated in the Siuslaw basin and is in the initial scoping and data collection phase (ODEQ 2011b).

Water quality is monitored monthly in the Siuslaw River estuary by the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians (Confederated Tribes 2009). Monitoring conducted approximately 7 river miles from the mouth found that average turbidity levels (measured as nephelometric turbidity units or NTUs) in the estuary during the high flow period were as follows: 3.56 NTU, 6.54 NTU, 13.25 NTU, 6.69 NTU, and 3.22 NTU in October 2007 through February 2008, respectively. Additional data collected from 2004-2011 by the Siuslaw Volunteer Water Quality Monitoring Program indicate that turbidity typically ranges from 1 to 7 NTU in the estuary, with two high data points of 15 NTU and 17 NTU collected in January 2006 and January 2011, respectively (Siuslaw Watershed Council 2011).

ODEQ defines low summer flow as beginning June 1st and ending September 30th, and high seasonal flow as beginning October 1st and ending May 30th. ODEQ recommended that an ambient background standard of 50 NTU be applied to data

collected during high flow periods and 5 NTU be applied to low flow data (Confederated Tribes 2009).

Periodic dredging of the Siuslaw River is conducted between April 1 and October 31 by the USACE to maintain the navigation channel at a depth of 16 feet and width of 200 feet from the mouth to approximately river mile 5. The dredging is needed because of continuous shoaling at the entrance channel at the mouth of the Siuslaw River that does not provide adequate depth for passage of larger vessels (USACE 2010). Thus, sediments in the near vicinity of the action area are subject to regular disturbance from dredging, and localized, short-term increases in turbidity would be expected from dredging activities between April and October.

# Section 3

## Effects of the Action

### 3.1 Effects Analysis

The following section addresses direct effects of the proposed action on listed species and applicable critical habitats. Indirect, interrelated, interdependent, and cumulative effects are addressed in Section 3.1.4. Potential direct effects are those that occur at, or very close to, the time of the action itself. While indirect effects occur later in time, they are still reasonably certain to occur as a result of the project (50 CFR § 402.02). Interrelated actions are those “that are part of a larger action and depend on the larger action for their justification”, while interdependent actions are defined as those “with no independent utility apart from the proposed action” (50 CFR § 402.02).

The proposed action includes placement of a riprap revetment along the shoreline behind the boathouse of the USCG Station Siuslaw River (Figure 1-5). Shoreline and in-water work would be completed from a barge either anchored along the shoreline or fixed to the river bottom with spuds. Due to river currents and the constraints of working around the existing structures, construction could take 11 weeks and would be done between October 1 and February 15. The majority of work would be conducted during the approved in-water work period for the Siuslaw River estuary; November 1- February 15. The USCG would request an exemption to the approved in-water work period from NMFS and ODFW to allow work to commence on October 1 due to weather considerations.

#### 3.1.1 Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. It includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation process (50 CFR 402.02). This baseline section also addresses the primary constituent elements (PCEs) of the designated critical habitat in the project action area for threatened Oregon Coast coho salmon (73 FR 7816, February 11, 2008).

Table 3-1 provides the NMFS checklist for documenting the environmental baseline and effects of the proposed action (NMFS 1996a). An extensive field survey of the habitat parameters identified in the checklist was not performed in the action area. Rather, the checklist was completed using the best available scientific information for the area and through visual observation of the project vicinity.

**Table 3-1. Checklist for Documenting Environmental Baseline and Effects of the Proposed Action on Relevant Indicators<sup>1</sup>**

PATHWAYS Indicators	ENVIRONMENTAL BASELINE			EFFECTS OF THE ACTION(S)		
	Properly Functioning <sup>2</sup>	At Risk <sup>2</sup>	Not Properly <sup>2</sup> Functioning	Restore <sup>3</sup>	Maintain <sup>4</sup>	Degrade <sup>5</sup>
Water Quality						
Temperature		X			X	
Sediment	X				X	
Chemical Contamination/Nutrients		X			X	
Habitat Access						
Physical Barriers	X				X	
Habitat Elements						
Substrate	X				X	
Shallow Water Habitat		X		X		
Deep Water Habitat		X			X	
Large Woody Debris			X		X	
Off-Channel Habitat			X		X	
Primary Productivity		X			X	
Macroinvertebrate		X			X	
Predation			X		X	
Refugia			X		X	
Channel Condition and Dynamics						
Streambank Condition			X		X	
Floodplain Connectivity			X		X	
Flow/Hydrology						
Peak/Baseflows		X			X	
Watershed Conditions						
Disturbance History		X			X	
Riparian Reserves		X			X	
Watershed Name: <b>Siuslaw River</b>				Location: <b>Sec 15, T 18S, R 12W</b>		

<sup>1</sup> Source: NMFS 1996a

<sup>2</sup> These three categories of function (*properly functioning*, *at risk*, and *not properly functioning*) are defined for each indicator in the “Matrix of Pathways and Indicators.”

<sup>3</sup> For the purposes of this checklist, *restore* means to change the function of an *at risk* indicator to *properly functioning* (it does not apply to “*properly functioning*” indicators).

<sup>4</sup> For the purposes of this checklist, *maintain* means that the function of an indicator does not change (i.e., it applies to all indicators regardless of functional level).

<sup>5</sup> For the purposes of this checklist, *degrade* means to change the function of an indicator for the worse (i.e., it applies to all indicators regardless of functional level). In some cases, a “not properly functioning” indicator may be further worsened, and this should be noted.

The biological requirements of the listed and proposed species are currently not being met under the environmental baseline. Any further degradation of these conditions would have a significant impact due to the amount of risk they presently face under the environmental baseline.

### **3.1.1.1 Analysis of Indicators**

#### **Temperature**

During the summer months, the Siuslaw River exceeds temperature standards (ODEQ 2011a). Specific effects on salmonids attributed to increased temperatures include increased juvenile mortality, increased susceptibility and exposure to diseases, impaired ability to avoid predators, altered migration timing, and changes in fish community structure that favor competitors (NMFS 1996b). This indicator is considered “at risk” and the proposed action would maintain this condition as it would not change the temperature in the action area.

#### **Sediment**

NMFS criteria for “properly functioning” conditions for sediment are based on requirements in streams where spawning and rearing take place. There is no known spawning habitat for salmonids in the project action area, so the sediment criteria related to spawning conditions are not applicable. However, juvenile coho salmon may rear in the action area waters during their downstream migration, making turbidity the primary indicator.

Overall, the turbidity conditions in the project action area tend to be within the low turbidity range for a large river, and are considered to be “properly functioning” relative to NMFS matrix criteria. The project is expected to maintain existing conditions due to the limited amount of disturbance that would be created during the installation of riprap and fill material.

#### **Chemical Contamination/Nutrients**

The project action area is not on the 303(d) list for chemical contamination or nutrients. However, due to its proximity to an urban center, nutrient input is likely to occur during storm events. Thus, this indicator is considered “at risk” and the proposed action would maintain existing conditions.

#### **Physical Barriers**

There are no dams or fish passage barriers located in the project action area. Therefore, this indicator is considered “properly functioning” and the proposed action would maintain the function of this indicator.

#### **Substrate**

Substrate in the action area is primarily coarse marine sand, cobble, or rock (Siuslaw Watershed Council 2002). This indicator is considered “properly functioning” and the proposed action would maintain this condition.

### **Shallow Water Habitat**

Construction of riprap revetment would occur in waters up to -15 feet. Due to the ongoing loss of river bottom material due to erosion in the action area, this indicator is considered “at risk”. The proposed action would maintain this condition.

### **Deep Water Habitat**

Deep water habitat in the action area is regularly disturbed through navigation channel deepening to maintain shipping access in the estuary. This indicator is considered “at risk” and the proposed action would maintain this functionality.

### **Large Woody Debris (LWD)**

The limited occurrence of mature trees along the shoreline within the lower portion of the estuary reduces the potential recruitment of LWD. In addition, the river banks in the action area have been hardened in places with groins or riprap. Therefore, this indicator is considered “not properly functioning” in the action area and the proposed action would maintain this functionality.

### **Off-Channel Habitat**

The Siuslaw River estuary has been altered and disconnected from its floodplain, and there are no side channels in the vicinity of the action area. This indicator is “not properly functioning” and the proposed action would maintain this existing condition.

### **Primary Productivity**

Primary productivity in the action area is carried out by phytoplankton in the water column and is dependent on light penetration and other factors such as water temperature and nutrients. This indicator is considered “at risk” in the action area and the proposed action would maintain this functionality.

### **Macroinvertebrate**

The macroinvertebrate indicator is considered “at risk” due to the high level of regular disturbance of aquatic habitats within the navigation channel. The proposed action would maintain this functionality.

### **Predation**

Predation in the action area is considered “not properly functioning” due to the lack of LWD in the action area. Tidal marsh habitat and other important shallow water habitat that allows juvenile fish to hide from predators have been greatly reduced. The proposed action would maintain this condition.

### **Refugia**

Refugia are very limited in the action area. Undercut banks and sparse tidally submerged vegetation may provide some shelter for juvenile fish, but LWD is mostly absent. This indicator is considered “not properly functioning” and the proposed action would maintain this functionality.



### **Streambank Condition**

Streambank condition in the action area is highly erodible in areas not hardened with riprap or groins. This indicator is considered “not properly functioning” and the proposed action would maintain this condition.

### **Floodplain Connectivity**

Floodplain connectivity has been greatly reduced within the estuary and is “not properly functioning”. The proposed action would maintain this condition.

### **Peak/Base Flows**

There are no major dams to alter flows in the Siuslaw River. However, alterations to the river banks, such as groins constructed on the west bank across from the action area, and channel deepening for navigation have altered flows from their historic conditions. This indicator is “at risk” and the proposed action would maintain this condition.

### **Disturbance History**

Disturbance history has altered the estuary from its historic condition. This indicator is considered “at risk”. The proposed action would maintain this functionality.

### **Riparian Reserves**

Riparian reserves within the project action area have been altered from historic conditions but are moderately functional. This indicator is considered “at risk” and the proposed action would maintain this condition.

### **3.1.1.2 Analysis of Primary Constituent Elements (PCEs) for Oregon Coast Coho Salmon**

Evaluating the potential effects of the proposed action on critical habitat for Oregon Coast coho salmon consists of examining the condition and trends of the PCEs throughout the designated area. The PCEs potentially found at the project site are estuarine rearing and freshwater migration components. The other coho salmon critical habitat PCEs, freshwater spawning sites, freshwater rearing sites, nearshore and offshore marine habitats, do not occur in the action area and would therefore not be affected by the proposed action.

Estuarine rearing habitat in the Siuslaw River estuary is degraded by increased water temperatures, lack of LWD and other refugia, and altered channel morphology and stability. Although there are no dams or other major barriers to migration, freshwater migration habitat in the action area is considered degraded due to the lack of habitat features that allow juvenile fish to avoid high flows, avoid predators, successfully compete, begin the behavioral and physiological changes needed for life in the ocean, and reach the ocean in a timely manner. Lack of these required habitat features are also stressors for adult fish moving upstream to spawning areas (NMFS 2008).

Due to the limited construction duration of the proposed action and implementation of conservation measures described in Section 3.3, there would be no effect on these critical habitat PCEs in the action area. Due to the lack of existing habitat for juvenile

fish in the action area, the alteration of the shoreline with the permanent placement of riprap would not affect the estuarine rearing PCE or inhibit migration of adult fish.

### **3.1.2 Water Quality Effects**

Effects to water quality in the action area include the potential for a temporary and localized sediment plume along the shoreline during placement of the riprap revetment. The increase in turbidity will be localized and short-term, and should dissipate within several hours following cessation of the activity.

The effect of turbidity on salmonids varies by life stage, with juveniles generally subject to greater risk than adults. Although low to moderate turbidity levels can enhance survival of juvenile salmonids by providing cover from predation (Gregory and Levings 1998), high levels can reduce feeding efficiency and food availability, clog gillrakers, and erode gill filaments (Bruton 1985; Gregory 1993). Long-term turbidity increases may also reduce the amount of light in the water column, decreasing aquatic productivity (USACE 2001).

Specific BMPs, as described in Section 1.4, would be implemented during construction to minimize turbidity and prevent the release of pollutants to the water.

### **3.1.3 Effects on Shallow Water Habitat and Prey**

Shallow water and shoreline beach habitats are important for rearing of juvenile salmon and eulachon, providing valuable food resources (e.g., benthic macroinvertebrates) and refuge from predators. Sub-yearling salmon are commonly found in shallow water, at depths of 20 feet or less, close to shore where prey is more abundant, and predator avoidance is more successful. Similarly, juvenile eulachon would likely occupy shallow-water habitats. However, shallow-water habitat in the action area is very limited, as the shoreline slopes steeply down and offers little to no aquatic vegetation, LWD, or other refugia.

The proposed project would result in mortality to benthic organisms present along the shoreline. The permanent loss of the benthic prey base within the area where riprap would be placed would not be expected to have a significant adverse effect, as the benthic community along the adjacent shoreline would be available as a food source for fish foraging in the area. Existing habitat along the shoreline is limited to steep banks which drop off quickly to deep water. Alteration of the shoreline habitat with the permanent placement of riprap would not affect the estuarine rearing PCE or inhibit migration of adult fish.

Eelgrass (*Zostera marina*) provides important habitat for juvenile salmon to forage and hide from predators. Although eelgrass occurs in intertidal habitats within the estuary, it is not known to occur in the project action area. This is likely because the river bottom slopes down quickly from shore and the benthic material is too unstable to support eelgrass beds. No eelgrass habitat would be affected by the proposed action. Therefore, permanent alteration of existing habitat along the shoreline in the

action area with the placement of riprap is not expected to have a significant adverse effect.

### **3.1.4 Interrelated, Interdependent Effects, and Cumulative Effects**

Interrelated actions are activities that are part of the larger action and depend on the larger action for their justification. Interdependent actions are those associated with the proposed activity, which have no independent utility apart from the action being considered. For the purposes of the Endangered Species Act, cumulative effects are defined as all future state, local, or private activities that are reasonably certain to occur within the action area of the project under consultation. The analysis does not include future Federal activities unrelated to the proposed action, as those impacts would be subject to separate consultation.

No interrelated or interdependent effects are expected from the project. There are no other known state, local, or private actions that are reasonably certain to occur that may affect listed species or critical habitat within the action area. Therefore, no cumulative effects are anticipated.

Periodic dredging of the Siuslaw River is conducted from April 1 to October 31 by the USACE to maintain the navigation channel. If an exemption is granted to the approved in-water work period, the Proposed Action would commence on October 1 and could occur concurrently with USACE maintenance dredging during the month of October. With the implementation of conservation measures as described in Section 1.4, water quality effects from the Proposed Action would be minimal and localized within the action area.

## **3.2 Take Analysis**

Given the timing, short duration, and low potential use of the action area by listed species, the potential for incidental take of listed species is low. If individuals of listed species are present in the action area during the proposed action, direct effects, including disturbance or mortality, could occur and result in incidental take.

## **3.3 Conservation Measures**

The following proposed conservation measures would be implemented to minimize take of listed species resulting from completion of the proposed action. These conservation measures would also minimize adverse effects to critical habitat.

- The majority of work would be conducted during the approved in-water work period for the Siuslaw River estuary (November 1- February 15). The USCG is requesting an exemption to the approved in-water work period from NMFS and ODFW to allow work to commence on October 1 due to weather considerations.
- BMPs would be implemented as part of an erosion and pollution control plan as described in Section 1.4.

### 3.4 Determination of Effects

The determination of potential effects of the proposed action on Oregon Coast coho salmon, green sturgeon, eulachon, marbled murrelet, killer whale, Steller sea lion, and designated critical habitat for Oregon Coast coho salmon considered the following:

- Environmental baseline
- Importance of the action area to listed species
- The degree of predicted effects of the proposed action with the implementation of proposed conservation measures

#### 3.4.1 Effects Determination for Oregon Coast Coho Salmon

Based on the effects analysis, it is concluded that the proposed action “**may affect**”, but is “**not likely to adversely affect**”, the Oregon Coast coho salmon ESU in the action area. Adult coho present in the action area during construction would be expected to move away from construction disturbance. Potential direct effects to coho salmon and their habitat from the Proposed Action may include behavioral changes associated with short-term and localized increases in turbidity and reductions in benthic invertebrate production. These localized effects, however, are not likely to result in significant adverse effects to feeding behavior, use of preferred habitat, or migration behavior.

#### 3.4.2 Effects Determination for Green Sturgeon

It is anticipated that the proposed action will have “**no effect**” on the Southern DPS of North American green sturgeon. There are no known spawning areas in the Siuslaw River, so the only life stages that would occur in the action area are adults and subadults. In addition, green sturgeon are not expected to occur in the action area during construction.

#### 3.4.3 Effects Determination for Eulachon

The proposed action will have “**no affect**” on eulachon. Spawning habitat is not likely to occur within the action area. Eulachon are not expected to occur in the action area during construction.

#### 3.4.4 Effects Determination for Marbled Murrelet

The proposed action will have “**no effect**” on marbled murrelet. Marbled murrelets may forage in the action area throughout the year, but would be expected to move away from disturbance during construction.

#### 3.4.5 Effects Determination for Killer Whale

The proposed action will have “**no effect**” on the Southern Resident DPS of killer whale. Low numbers of killer whales have been observed in the action area during the summer months but they would not be expected to occur in the action area during construction.

### 3.4.6 Effects Determination for Steller Sea Lion

The proposed action will have **“no effect”** on the Eastern DPS of Steller sea lion. Low numbers of Steller sea lions may occur in the action area, but any individuals present would be expected to easily move away from the action area during construction. There are no known haul-out locations within or near the action area.

### 3.4.7 Effects Determination for Oregon Coast Coho Salmon Critical Habitat

The action area is within designated critical habitat for the Oregon Coast coho salmon ESU. The action area is within the migration habitat for this species, but rearing habitat is limited, as there is little refugia where juvenile salmon would occur. The PCE indicators in the action area are generally at risk or not properly functioning, and the limited duration and extent of the proposed action would maintain the existing conditions. In addition, conservation measures would be implemented to minimize water quality effects on rearing or migration behavior.

As a result, the proposed action **“may affect”**, but is **“not likely to adversely affect”** designated critical habitat for Oregon Coast coho salmon.

### 3.4.8 Summary of Effect Determinations

The proposed action **“may affect”**, but is **“not likely to adversely affect”** the Oregon Coast coho salmon ESU. This determination is based on the lack of habitat in the action area for juvenile salmonids and the short-term and localized nature of the proposed action which is not likely to result in significant adverse effects to feeding behavior, use of preferred habitat, or migration behavior.

The proposed action will have **“no effect”** on green sturgeon as this species is not expected to be in the vicinity of the action area during the proposed action.

The proposed action **“may affect”**, but is **“not likely to adversely affect”** eulachon due to the lack of habitat in the action area for juvenile eulachon and the low potential for significant adverse effects on feeding behavior or use of preferred habitat.

The proposed action will have **“no effect”** on marbled murrelet as this species would easily move away from construction activities if it is present during construction.

The proposed action will have **“no effect”** on killer whale as this species is not expected to be in the vicinity of the action area during construction.

The proposed action will have **“no effect”** on Steller sea lion as this species would easily move away from construction activities if it is present during construction.

The proposed action **“may affect”**, but is **“not likely to adversely affect”** designated critical habitat for Oregon Coast coho salmon. This determination is based on the limited duration of construction and the limited extent of the proposed action and the low potential for effects to rearing or migration habitat.

## Section 4

# Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with NMFS on activities that may adversely affect essential fish habitat (EFH). EFH has been defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Adverse effects include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH (50 CFR 600.810).

The action area is designated EFH for coho and Chinook salmon (PFMC 2000), five coastal pelagic species (PFMC 1998), and 16 groundfish species (PFMC 2006) by the Pacific Fishery Management Council (PFMC).

EFH for Pacific salmon in freshwater includes all streams, lakes, ponds, wetlands, and other currently viable bodies of freshwater and the substrates within those water bodies accessible to Pacific salmon. Coho and Chinook salmon are sensitive to loss of suitable spawning and rearing habitat, barriers to fish migration, and reduced water and sediment quality in freshwater habitats (PFMC 2000).

EFH for groundfish and coastal pelagic species includes all waters from the mean high water line along the coasts of Washington and Oregon, upstream to the extent of saltwater intrusion. The Siuslaw River estuary and submerged aquatic vegetation are habitat types designated by the PFMC as Habitat Areas of Particular Concern for groundfish species. Estuaries provide important nursery habitat for many groundfish species, and submerged aquatic vegetation, including eelgrass, provides a source of benthic invertebrate prey species and cover from predators.

The proposed riprap revetment construction could have adverse effects on EFH designated for coho and Chinook salmon and groundfish species. These effects include a temporary reduction in water quality from increased turbidity, effects to physical habitat (changing bottom topography) and the prey base (removing or burying benthic populations), and harassment/displacement from disturbance caused by construction activities.

In-water construction activities can result in elevated levels of fine-grained mineral particles or suspended sediment concentration, usually smaller than silt, and organic particles in the water column. The associated increased turbidity may reduce light penetration and result in fish gill injury.

Implementation of the conservation measures described in Section 3.3 is expected to minimize and offset the potential effects of the proposed action on EFH. These

conservation measures include conducting most of the work during the approved in-water work period from November 1- February 15, and operating and maintaining all equipment in a manner consistent with an approved erosion and pollution control plan. The USCG is requesting an exemption to the approved in-water work period from NMFS and ODFW to allow work to commence on October 1 due to weather considerations.

The material to be placed includes gravel, on-site fill material (primarily sand), and large riprap which would not be expected to create much turbidity. Bottom substrate that might be disturbed by placement of material include coarse river sand that would settle back out relatively quickly and would not be likely to remain suspended long enough to reduce light penetration. The potential for fish injury is also expected to be low due to the sediment grain size, the timing of the work to a season when few fish are present, and the localized construction area.

Based on consideration of the EFH requirements for Pacific Coast salmon, groundfish, and coastal pelagic species, the potential direct, indirect, and cumulative effects of the proposed project actions are “*not likely to adversely affect*” identified EFH for Pacific salmon, groundfish, or coastal pelagic species. The implementation of appropriate conservation measures minimizes impacts to EFH for these species, and no significant long-term effects to EFH are anticipated.

## Section 5

# References

- Biological Review Team (BRT). 2010. Status Review Update for Eulachon in Washington, Oregon, and California. NMFS Northwest Fisheries Science Center. Seattle, WA. January.
- Bruton, M.N. 1985. The effects of suspendoids on fish. *Hydrobiologia* 125:221-241.
- Confederated Tribes. 2009. Water Quality Data Summary (October 2007 to September 2008). Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians Department of Natural Resources. February.
- Gregory, R. S. 1993. Effect of turbidity on the predator avoidance behavior of juvenile Chinook salmon (*Oncorhynchus tshawytscha*). *Canadian Journal of Fisheries and Aquatic Sciences* 50: 241-246.
- Gregory, R.S. and C.D. Levings. 1998. Turbidity reduces predation on migrating juvenile Pacific salmon. *Transactions of the American Fisheries Society* 127: 275-285.
- Lawson, P.W., E.P. Bjorkstedt, M.W. Chilcote, C.W. Huntington, J.S. Mills, K.M.S. Moore, T.E. Nickelson, G.H. Reeves, H.A. Stout, T.C. Wainwright, and L.A. Weitkamp. 2007. Identification of historical populations of Coho salmon (*Oncorhynchus kisutch*) in the Oregon coast evolutionarily significant unit. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-79, 129 p.
- Lindley, S.T., M.L. Moser, D.L. Erickson, M. Belchik, D.W. Welch, E.L. Rechisky, J.T. Kelly, J. Heublein, and A.P. Klimley. 2008. Marine Migration of North American Green Sturgeon. *Transactions of the American Fisheries Society* 137:182-194.
- Moser, M. L., and S. T. Lindley. 2007. Use of Washington estuaries by subadult and adult green sturgeon. *Environmental Biology of Fishes* 79:243-253.
- National Marine Fisheries Service (NMFS). 1978. Determination of Critical Habitat for the Leatherback Sea Turtle; Final Rule. Federal Register (43):12050-12051.
- NMFS. 1979. Determination of Critical Habitat for the Leatherback Sea Turtle; Final Rule. Federal Register (44):17710-17712.
- NMFS. 1990. Listing of Steller Sea Lions as Threatened Under the Endangered Species Act; Final Rule. Federal Register (55):49204-49241.
- NMFS. 1993. Designated Critical Habitat; Steller Sea Lion; Final Rule. Federal Register (58):45269-45285.



NMFS. 1996a. Making endangered species act determinations of effect for individual or grouped actions as the watershed scale. National Marine Fisheries Service Environmental and Technical Services Division Habitat Conservation Branch.

NMFS. 1996b. Factors for Decline. A supplement to the Notice of Determination for west coast steelhead under the Endangered Species Act. Protected Resources Branch, Portland, Oregon.

NMFS and USFWS. 1998. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys coriacea*). National Marine Fisheries Service, Silver Spring, MD.

NMFS. 2006a. Threatened Status for Southern Distinct Population Segment of North American Green Sturgeon; Final Rule. Federal Register (71): 17757-17766.

NMFS. 2006b. Eulachon: A Review of Biology and an Annotated Bibliography. Alaska Fisheries Science Center Processed Report 2006-12, August.

NMFS. 2007. Species of Concern Fact Sheet. Green Sturgeon *Acipenser medirostris* Northern DPS. Available online at:  
[http://www.nmfs.noaa.gov/pr/pdfs/species/greensturgeon\\_detailed.pdf](http://www.nmfs.noaa.gov/pr/pdfs/species/greensturgeon_detailed.pdf)

NMFS. 2008. Final Threatened Listing Determination, Final Protective Regulations, and Final Designation of Critical Habitat for the Oregon Coast Evolutionarily Significant Unit of Coho Salmon; Final Rule. Federal Register (73): 7816-7873.

NMFS. 2009a. Endangered Species Act Section 7 Consultation, Biological Opinion and Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation, Port of Siuslaw Maintenance Dredging, Siuslaw River (6th field HUC 171002060804), Lane County, Oregon (Corps No.: NWP-1997-1360). March.

NMFS. 2009b. Final Rulemaking To Designate Critical Habitat for the Threatened Southern Distinct Population Segment of North American Green Sturgeon; Final Rule. Federal Register (74):52300-52351.

NMFS. 2010. Threatened Status for Southern Distinct Population Segment of Eulachon; Final Rule. Federal Register (75):13012-13024.

NMFS. 2011a. Species Lists. Northwest Regional Office Website. Available online at:  
<http://www.nwr.noaa.gov/Species-Lists.cfm>

NMFS. 2011b. Threatened Status for the Oregon Coast Coho Salmon Evolutionarily Significant Unit; Final Rule. Federal Register (76):35755-35771.

NMFS. 2011c. Steller Sea Lion (*Eumetopias jubatus*). Available online at:  
<http://www.nmfs.noaa.gov/pr/species/mammals/pinnipeds/stellersealion.htm>.

NMFS. 2011d. 90-Day Finding and 12-Month Determination on a Petition to Revise Critical Habitat for the Leatherback Sea Turtle. Federal Register (76): 47133-47139.

NMFS. 2012. Comments on Proposed US Coast Guard Shoreline Stabilization Project in the Siuslaw River (6<sup>th</sup> Field HUC 171002060804), Lane County, Oregon. Scoping comment letter dated January 20, 2012.

ODEQ. 2011a. Water Quality Assessment Database. Available on line at:  
<http://www.deq.state.or.us/wq/assessment/rpt0406/search.asp>

ODEQ. 2011b. Water Quality Total Maximum Daily Loads (TMDLs) Program. Oregon Department of Environmental Quality Website:  
<http://www.deq.state.or.us/wq/tmdls/midcoast.htm#siuslaw>

Oregon State Parks. 2011. Whale Watching Center, Depoe Bay. Oregon Coast Chart: Whales, Dolphins, and Porpoises. Available online at:  
<http://whalespoken.org/OPRD/PARKS/WhaleWatchingCenter/facts.shtml>

Pacific Fishery Management Council (PFMC). 1998. Amendment 8 to the Coastal Pelagic Species Fishery Management Plan. Pacific Fishery Management Council, Portland, Oregon. December. Available at: <http://www.pcouncil.org/coastal-pelagic-species/fishery-management-plan-and-amendments/amendment-8/>

PFMC. 2000. Amendment 14 to the Pacific Coast Salmon Management Plan, Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California. Pacific Fishery Management Council, Portland, Oregon. May. Available at: <http://www.pcouncil.org/salmon/fishery-management-plan/adoptedapproved-amendments/amendment-14-to-the-pacific-coast-salmon-plan-1997/>

PFMC. 2006. Amendment 19 to the Pacific Coast Groundfish Fishery Management Plan. Appendix B: Pacific Coast Groundfish Essential Fish Habitat. Pacific Fishery Management Council, Portland, Oregon. May. Available at:  
<http://www.pcouncil.org/groundfish/fishery-management-plan/fmp-amendment-19/>

SalmonRecovery.gov. 2009. Bull Trout (*Salvelinus confluentus*). Available at:  
<http://www.salmonrecovery.gov/Files/030%20Bull%20Trout%20121009.pdf>

Siuslaw Watershed Council. 2002. A Watershed Assessment for the Siuslaw Basin. Available online at:  
[http://oregonexplorer.info/data\\_files/OE\\_location/northcoast/documents/NorthCoastPDFs/siuslaw.pdf](http://oregonexplorer.info/data_files/OE_location/northcoast/documents/NorthCoastPDFs/siuslaw.pdf)

Siuslaw Watershed Council. 2011. Siuslaw Volunteer Water Quality Monitoring Program. Available online at: <http://www.siuslaw.org/monitoring/>

U.S. Army Corps of Engineers (USACE). 2001. Columbia River Navigation Channel Improvement Project (CRNCIP). Biological Assessment. December 28.

USACE. 2010. Maintenance Dredging for the Siuslaw River Coastal Navigation Project Lane County, Oregon. Draft Environmental Assessment. April.

USACE and U.S. Environmental Protection Agency (USEPA). 2010. Siuslaw River, Oregon, Ocean Dredged Material Disposal Sites Evaluation Study and Environmental Assessment. U.S. Army Corps of Engineers, Portland District and U.S. Environmental Protection Agency, Region 10. April.

U.S. Coast Guard (USCG). 2003. Station Siuslaw River. Fact Sheet. Available online at: [http://www.uscg.mil/d13/units/factsheets/station\\_siuslaw.pdf](http://www.uscg.mil/d13/units/factsheets/station_siuslaw.pdf)

USCG. 2011a. Final Preliminary Erosion Control Study, United States Coast Guard Station Siuslaw River, Florence, OR. January 2011.

USCG. 2011b. Shoreline Erosion Feasibility Study and Recommendations Technical Memorandum. U.S. Coast Guard Station, Siuslaw River, Oregon, prepared by Coast and Harbor Engineering for the USCG. January.

U.S. Fish and Wildlife Service (USFWS). 1970. Conservation of Endangered Species and Other Fish or Wildlife. Federal Register (35):8491-8498.

USFWS and NMFS. 1978. Listing and Protecting Loggerhead Sea Turtles as "Threatened Species" and Populations of Green and Olive Ridley Sea Turtles as Threatened Species or "Endangered Species"; Final Rule. Federal Register (43):32800-32811.

USFWS. 1980. Listing the Oregon Silverspot Butterfly as a Threatened Species With Critical Habitat; Final Rule. Federal Register (45):44935-44938.

USFWS. 1988. Endangered Status for *Lomatium bradshawii* (Bradshaw's Lomatium). Federal Register (53):38448-38451.

USFWS. 1990. Determination of Threatened Status for the Northern Spotted Owl; Final Rule. Federal Register (55):26114-26194.

USFWS. 1992. Determination of Threatened Status for the Washington, Oregon, and California Population of the Marbled Murrelet; Final Rule. Federal Register (57):45328-45337.

USFWS. 1993. Determination of Threatened Status for the Pacific Coast Population of the Western Snowy Plover Final Rule. Federal Register (58):12864-12874.

USFWS. 1999. Determination of Threatened Status for Bull Trout in the Coterminous United States; Final Rule. Federal Register (64):58909-58933.

- USFWS. 2000a. Final Rule To List the Short-Tailed Albatross as Endangered in the United States. Federal Register (65): 46643-46654.
- USFWS. 2000b. Endangered Status for "*Erigeron decumbens*" var. "*decumbens*" (Willamette Daisy) and Fender's Blue Butterfly ("*Icaricia icarioides fenderi*") and Threatened Status for "*Lupinus sulphureus*" ssp. "*kincaidii*" (Kincaid's Lupine); Final Rule. Federal Register (65):3875-3890.
- USFWS. 2001. Oregon Silverspot Butterfly (*Speyeria zerene hippolyta*) Revised Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 113 pp.
- USFWS. 2005. Designation of Critical Habitat for the Pacific Coast Population of the Western Snowy Plover; Final Rule. Federal Register (70): 56970-57119.
- USFWS. 2005. Endangered Status for Southern Resident Killer Whales; Final Rule. Federal Register (70):69903-69912.
- USFWS. 2006a. Designation of Critical Habitat for the Marbled Murrelet; Proposed Rule. Federal Register (71): 53838-53951.
- USFWS. 2006b. Designation of Critical Habitat for Southern Resident Killer Whale; Final Rule. Federal Register (71):69054-69070.
- USFWS. 2006c. Designation of Critical Habitat for the Fender's blue butterfly (*Icaricia icarioides fenderi*), *Lupinus sulphureus* ssp. *kincaidii* (Kincaid's lupine), and *Erigeron decumbens* var. *decumbens* (Willamette daisy); Final Rule. Federal Register (71): 63862-63977.
- USFWS. 2007. Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (*Charadrius alexandrinus nivosus*). California/Nevada Operations Office, U.S. Fish and Wildlife Service, Sacramento, CA. August 13.
- USFWS. 2008a. Revised Critical Habitat for the Marbled Murrelet; Proposed Rule. Federal Register (73):44678-44701.
- USFWS. 2008b. Revised Designation of Critical Habitat for the Northern Spotted Owl; Final Rule. Federal Register (73):47326-47522.
- USFWS. 2008c. Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*). U.S. Fish and Wildlife Service, Portland, Oregon.
- USFWS. 2009. Marbled Murrelet (*Brachyramphus marmoratus*) 5-Year Review. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, WA. June 12.
- USFWS. 2010a. Species Fact Sheet Northern Spotted Owl (*Strix occidentalis caurina*). Available on line at:  
<http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/>

- USFWS. 2010b. Reclassification of the Oregon Chub From Endangered to Threatened; Final Rule. Federal Register (75): 21179-21189.
- USFWS. 2010c. Designation of Critical Habitat for Oregon Chub (*Oregonichthys crameri*); Final Rule. Federal Register (75):11010-11067.
- USFWS. 2010d. Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Proposed Rule. Federal Register (75):2270-2431.
- USFWS. 2011a. Endangered Species Lists by Oregon County. Oregon Fish and Wildlife Office. Available online at:  
<http://www.fws.gov/oregonfwo/Species/Lists/default.asp>
- USFWS. 2011b. Species Fact Sheet Marbled Murrelet (*Brachyramphus marmoratus*). Available online at:  
<http://www.fws.gov/oregonfwo/Species/Data/MarbledMurrelet/>
- USFWS. 2011c. Critical Habitat Portal. Available online at:  
<http://criticalhabitat.fws.gov/crithab/>
- USFWS. 2011d. Species Fact Sheet Oregon chub (*Oregonichthys crameri*). Available online at: <http://www.fws.gov/oregonfwo/Species/Data/OregonChub/>
- USFWS. 2011e. Species Fact Sheet Bradshaw's desert parsley *Lomatium bradshawii* (also known as Bradshaw's lomatium). Available online at:  
<http://www.fws.gov/oregonfwo/Species/Data/BradshawsLomatium/>
- USFWS. 2011f. Species Fact Sheet North American wolverine *Gulo gulo luscus*. Available online at:  
<http://www.fws.gov/oregonfwo/Species/Data/NorthAmericanWolverine/>
- USFWS. 2011g. Species Fact Sheet Streaked horned lark *Eremophila alpestris strigata*. Available online at:  
<http://www.fws.gov/oregonfwo/Species/Data/StreakedHornedLark/>
- USFWS. 2011h. Species Fact Sheet Oregon spotted frog *Rana pretiosa*. Available online at: <http://www.fws.gov/oregonfwo/Species/Data/OregonSpottedFrog/>

# Figures

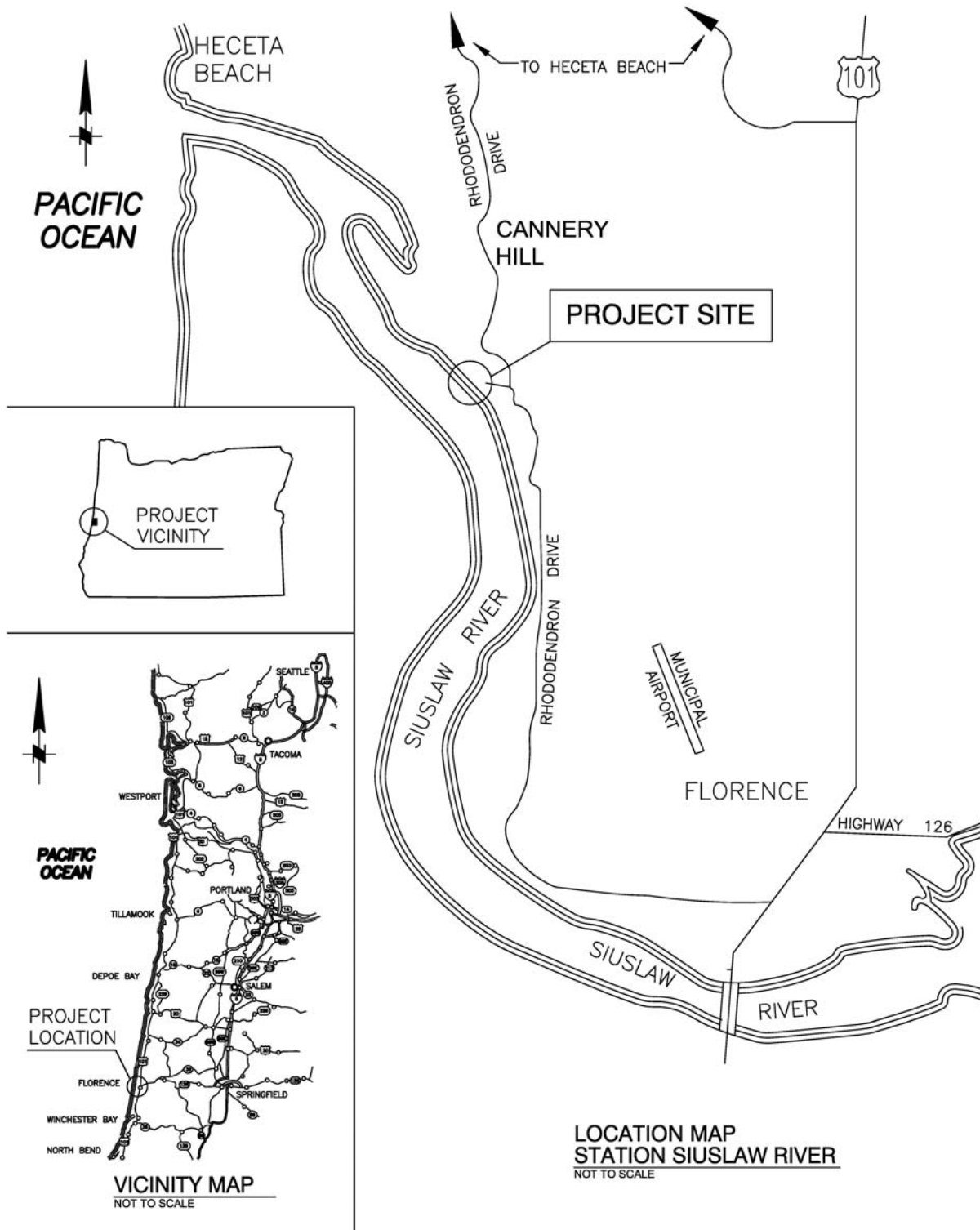


Figure 1-1. Vicinity Map

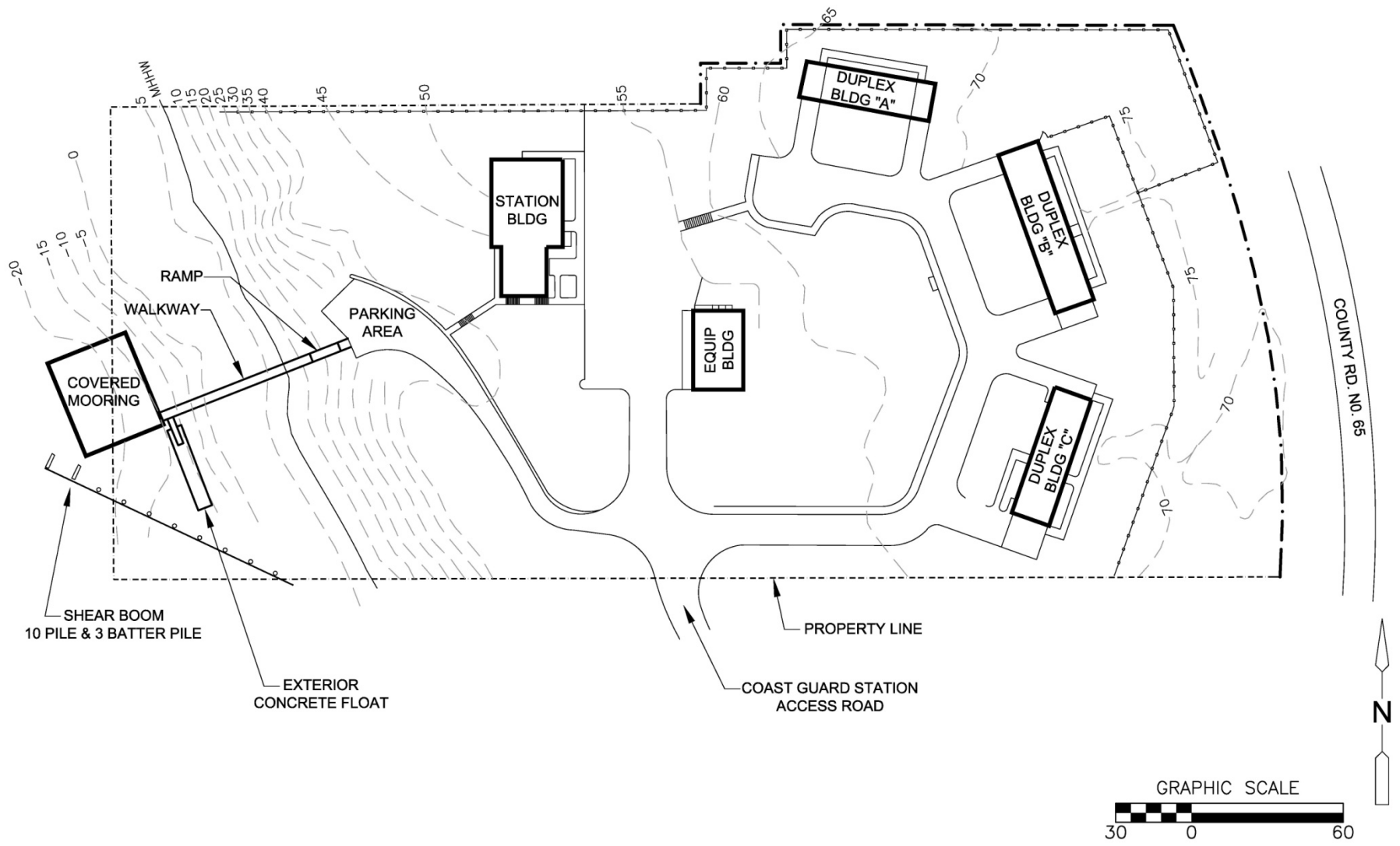


Figure 1-2 Site Map



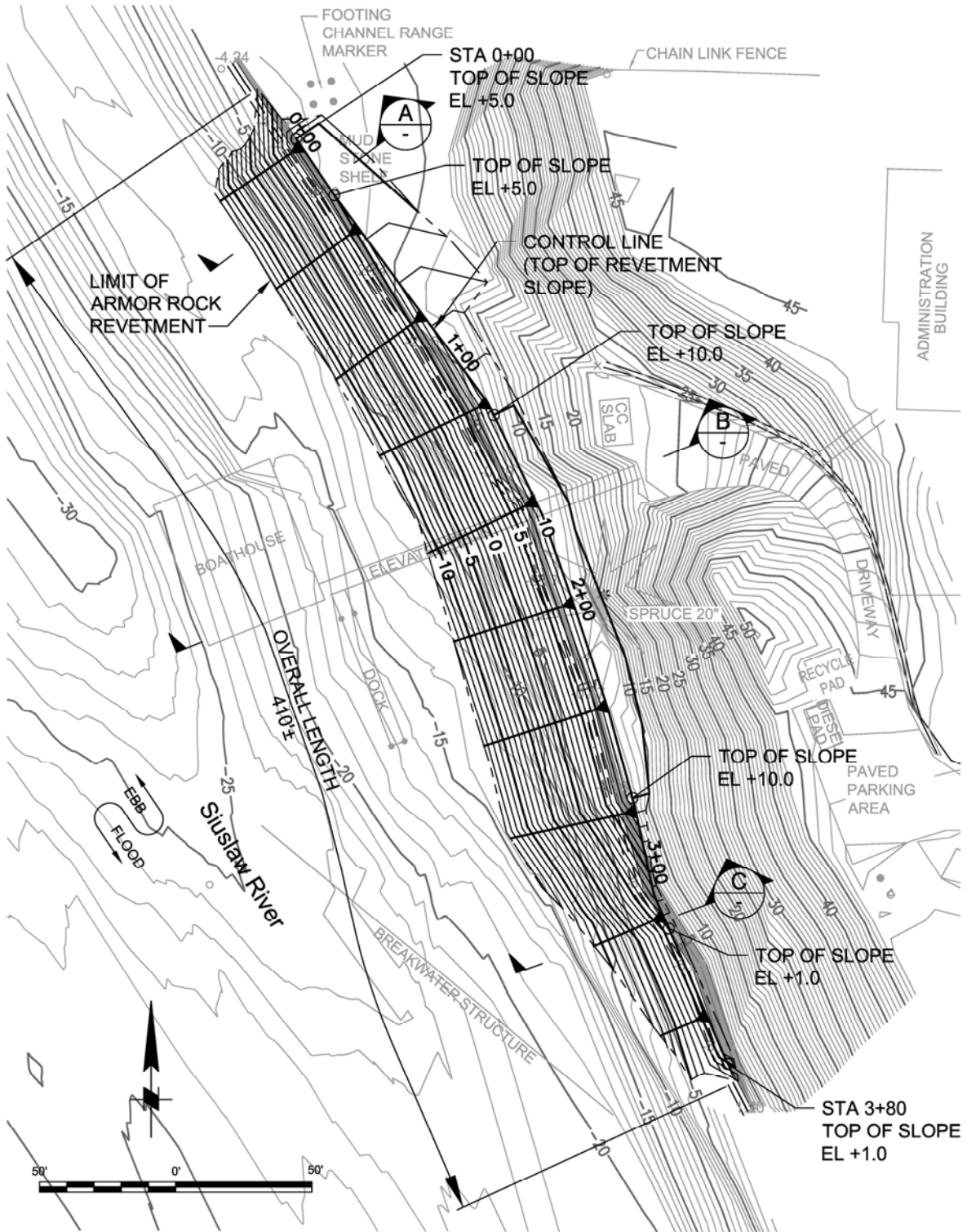
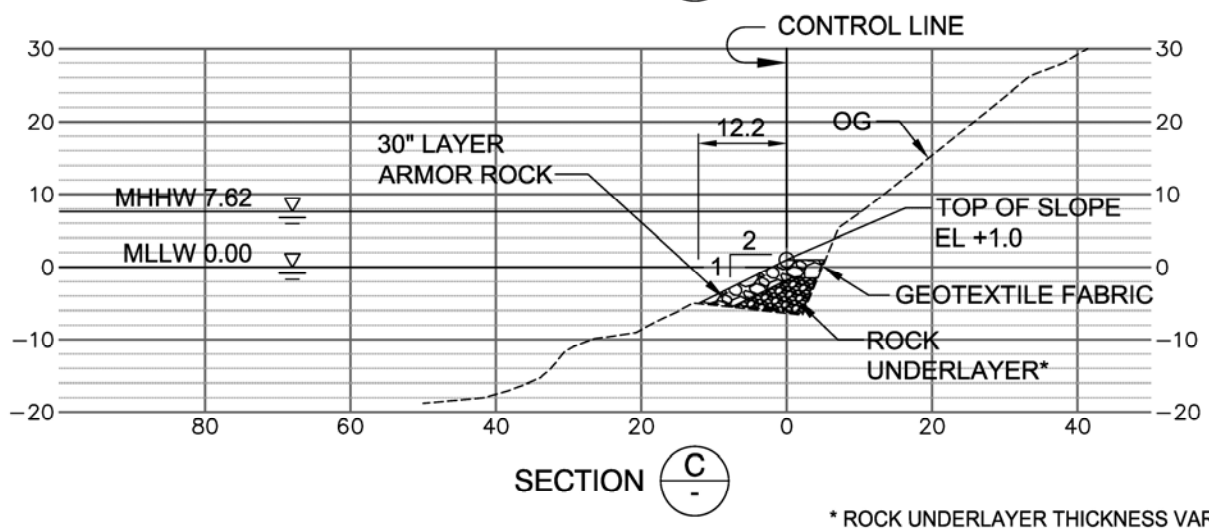
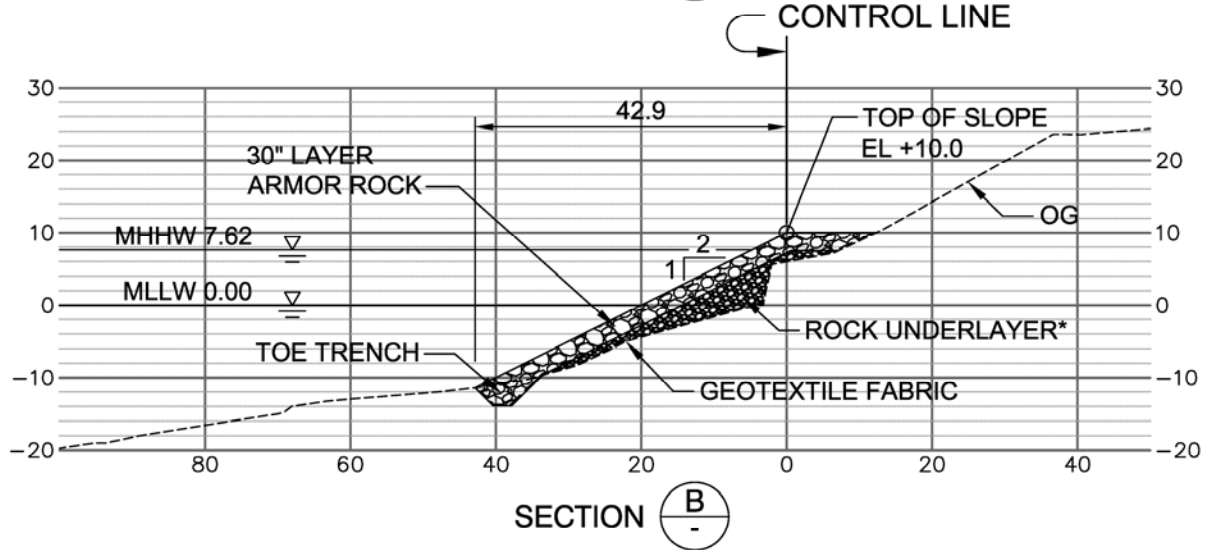
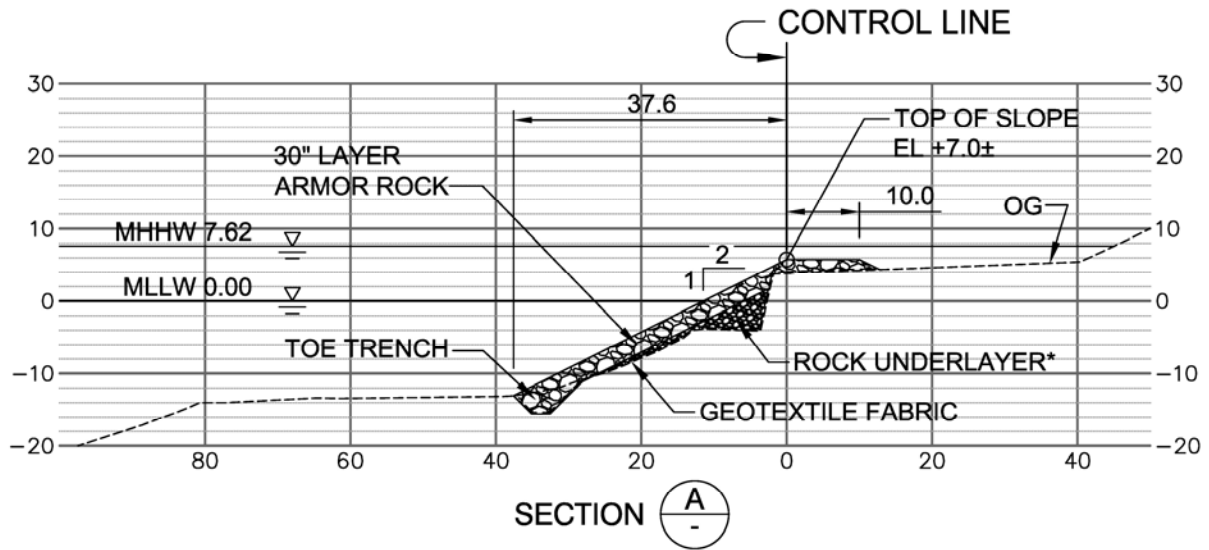


Figure 1-3 Riprap Revetment Plan View



\* ROCK UNDERLAYER THICKNESS VARIES

Figure 1-4 Riprap Revetment Cross Sections



Figure 1-5 Action Area

# **Appendix A**

## **Site Photographs**





**Looking west toward boathouse from top of walkway.**



**Looking east toward shoreline under base of walkway. Eroding shoreline is visible at low tide.**





Looking east toward shoreline under base of walkway during high tide.



Looking downstream from walkway during low tide.





Looking downstream from walkway during high tide.



Looking upstream from the walkway during low tide.





Looking upstream from the walkway during high tide.



**Looking east toward shoreline during high tide. Erosion of sand bluff above is visible as a patch of exposed sand.**





**Looking west from walkway along western side of boathouse showing support beams installed in 2008.**



Looking west along southern side of boathouse.



Looking south (upstream) toward debris boom.





Looking north toward boathouse from dock.





Looking west toward boathouse and dock from top of slope.



Looking west toward opposite shoreline showing groins along west bank.



**Closer view of west bank showing groins.**



Looking west downslope from fuel tank storage area.





Looking north showing fuel tank storage area.

# **Appendix B**

## **Species Lists**

**FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES  
AND SPECIES OF CONCERN  
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE  
WHICH MAY OCCUR WITHIN LANE COUNTY, OREGON**

**LISTED SPECIES**

**Birds**

Marbled murrelet	<i>Brachyramphus marmoratus</i>	CH T
Western snowy (coastal) plover	<i>Charadrius alexandrinus nivosus</i>	CH T
Short-tailed albatross	<i>Phoebastria albatrus</i>	E
Northern spotted owl	<i>Strix occidentalis caurina</i>	CH T

**Reptiles and Amphibians**

**Marine:**

Loggerhead sea turtle	<i>Caretta caretta</i>	E
Green sea turtle	<i>Chelonia mydas</i>	T
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E
Olive (=Pacific) ridley sea turtle	<i>Lepidochelys olivacea</i>	T

**Fish**

**Inland:**

Oregon chub	<i>Oregonichthys crameri</i>	CH T
Bull trout	<i>Salvelinus confluentus</i>	CH T

**Invertebrates**

**Insects:**

Fender's blue butterfly	<i>Icaricia icarioides fenderi</i>	CH E
Oregon silverspot butterfly	<i>Speyeria zerene hippolyta</i>	CH T

**Plants**

Willamette daisy	<i>Erigeron decumbens var. decumbens</i>	CH E
Bradshaw's desert parsley	<i>Lomatium bradshawii</i>	E
Kincaid's lupine	<i>Lupinus sulphureus ssp. kincaidii</i>	CH T

**PROPOSED SPECIES**

**None**

No Proposed Endangered Species	PE
No Proposed Threatened Species	PT

**CANDIDATE SPECIES**

**Mammals**

North American wolverine	<i>Gulo gulo luscus</i>
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**Birds**

Streaked horned lark	<i>Eremophila alpestris strigata</i>
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**Reptiles and Amphibians**

**Inland:**

**FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES  
AND SPECIES OF CONCERN  
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE  
WHICH MAY OCCUR WITHIN LANE COUNTY, OREGON**

Oregon spotted frog

*Rana pretiosa*

**SPECIES OF CONCERN**

**Mammals**

Pallid bat

*Antrozous pallidus pacificus*

White-footed vole

*Arborimus albipes*

Red tree vole

*Arborimus longicaudus*

Townsend's western big-eared bat

*Corynorhinus townsendii townsendii*

Silver-haired bat

*Lasionycteris noctivagans*

Long-eared myotis bat

*Myotis evotis*

Fringed myotis bat

*Myotis thysanodes*

Long-legged myotis bat

*Myotis volans*

Yuma myotis bat

*Myotis yumanensis*

Camas pocket gopher

*Thomomys bulbivorus*

**Birds**

Northern goshawk

*Accipiter gentilis*

Western burrowing owl

*Athene cunicularia hypugaea*

Black tern

*Chlidonias niger*

Olive-sided flycatcher

*Contopus cooperi*

Black oystercatcher

*Haematopus bachmani*

Harlequin duck

*Histrionicus histrionicus*

Yellow-breasted chat

*Icteria virens*

Acorn woodpecker

*Melanerpes formicivorus*

Lewis' woodpecker

*Melanerpes lewis*

Mountain quail

*Oreortyx pictus*

Band-tailed pigeon

*Patagioenas fasciata*

Oregon vesper sparrow

*Poocetes gramineus affinis*

Purple martin

*Progne subis*

**Reptiles and Amphibians**

Northern Pacific pond turtle

*Actinemys marmorata marmorata*

Coastal tailed frog

*Ascaphus truei*

Oregon slender salamander

*Batrachoseps wrighti*

Northern red-legged frog

*Rana aurora aurora*

Foothill yellow-legged frog

*Rana boylei*

Cascades frog

*Rana cascadae*

Southern torrent (seep) salamander

*Rhyacotriton variegatus*

**Fish**

Malheur mottled sculpin

*Cottus bairdi* ssp.

Pacific lamprey

*Lampetra tridentata*

Coastal cutthroat trout

*Oncorhynchus clarki* ssp

**Invertebrates**

***Insects:***

Tombstone Prairie farulan caddisfly

*Farula reaperi*

Tombstone Prairie oligophlebodes caddisfly

*Oligophlebodes mostbento*

Insular blue butterfly

*Plebejus saepiolus insulanus*

One-spot rhyacophilan caddisfly

*Rhyacophila unipunctata*



**FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES  
AND SPECIES OF CONCERN  
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE  
WHICH MAY OCCUR WITHIN LANE COUNTY, OREGON**

**Plants**

Pink sand-verbena  
Crenulate grape fern  
Cliff paintbrush  
Cold-water corydalis  
Willamette Valley larkspur  
Peacock larkspur  
Wayside aster  
Shaggy horkelia  
Thin-leaved peavine  
Frye's Limbella  
Whitetop aster  
Henderson's checker-mallow  
Hitchcock's blue-eyed grass

*Abronia umbellata ssp. breviflora*  
*Botrychium crenulatum*  
*Castilleja rupicola*  
*Corydalis aquae-gelidae*  
*Delphinium oregonum*  
*Delphinium pavonaceum*  
*Eucephalus vialis*  
*Horkelia congesta ssp. congesta*  
*Lathyrus holochlorus*  
*Limbella fryei*  
*Sericocarpus rigidus*  
*Sidalcea hendersonii*  
*Sisyrinchium hitchcockii*

**DELISTED SPECIES**

**Birds**

American Peregrine falcon  
Bald eagle  
Brown pelican

*Falco peregrinus anatum*  
*Haliaeetus leucocephalus*  
*Pelecanus occidentalis*

**Definitions:**

Listed Species: An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future.

Proposed Species: Taxa for which the Fish and Wildlife Service or National Marine Fisheries Service has published a proposal to list as endangered or threatened in the Federal Register.

Candidate Species: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

Species of Concern: Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.

Delisted Species: A species that has been removed from the Federal list of endangered and threatened wildlife and plants.

**Key:**

E      Endangered  
T      Threatened  
CH     Critical Habitat has been designated for this species  
PE     Proposed Endangered  
PT     Proposed Threatened

**FEDERALLY LISTED, PROPOSED, CANDIDATE SPECIES  
AND SPECIES OF CONCERN  
UNDER THE JURISDICTION OF THE FISH AND WILDLIFE SERVICE  
WHICH MAY OCCUR WITHIN LANE COUNTY, OREGON**

PCH Critical Habitat has been proposed for this species

**Notes:**

**Marine & Anadromous Species:** Please consult the National Marine Fisheries Service (NMFS) (<http://www.nmfs.noaa.gov/pr/species/>) for marine and anadromous species. The National Marine Fisheries Service (NMFS) manages mostly marine and anadromous species, while the U.S. Fish and Wildlife Service manages the remainder of the listed species, mostly terrestrial and freshwater species.

**Marine Turtle Conservation and Management:** All six species of sea turtles occurring in the U.S. are protected under the Endangered Species Act of 1973. In 1977, NOAA Fisheries and the U.S. Fish and Wildlife Service signed a Memorandum of Understanding to jointly administer the Endangered Species Act with respect to marine turtles. NOAA Fisheries has the lead responsibility for the conservation and recovery of sea turtles in the marine environment and the U.S. Fish and Wildlife Service has the lead for the conservation and recovery of sea turtles on nesting beaches. For more information, see the NOAA Fisheries webpage on sea turtles <http://www.nmfs.noaa.gov/pr/species/turtles/>.

**Gray Wolf:** In 2008, the Service published a final rule that established a distinct population segment of the gray wolf (*Canis lupis*) in the northern Rocky Mountains (which includes a portion of Eastern Oregon, east of the centerline of Highway 395 and Highway 78 north of Burns Junction and that portion of Oregon east of the centerline of Highway 95 south of Burns Junction). Any wolves found west of this line in Oregon belong to the conterminous USA population [see 73 FR 10514]. On May 5, 2011, the Fish and Wildlife Service published a final rule – as directed by legislative language in the Fiscal Year 2011 appropriations bill – reinstating the Service’s 2009 decision to delist biologically recovered gray wolf populations in the Northern Rocky Mountains. Gray wolves in Oregon are State-listed as endangered, regardless of location.

# Endangered Species Act Status of West Coast Salmon & Steelhead

(Updated Aug. 11, 2011)

		Species <sup>1</sup>	Current Endangered Species Act Listing Status <sup>2</sup>	ESA Listing Actions Under Review
Sockeye Salmon ( <i>Oncorhynchus nerka</i> )	1	Snake River	Endangered	
	2	Ozette Lake	Threatened	
	3	Baker River	Not Warranted	
	4	Okanogan River	Not Warranted	
	5	Lake Wenatchee	Not Warranted	
	6	Quinalt Lake	Not Warranted	
	7	Lake Pleasant	Not Warranted	
Chinook Salmon ( <i>O. tshawytscha</i> )	8	Sacramento River Winter-run	Endangered	
	9	Upper Columbia River Spring-run	Endangered	
	10	Snake River Spring/Summer-run	Threatened	
	11	Snake River Fall-run	Threatened	
	12	Puget Sound	Threatened	
	13	Lower Columbia River	Threatened	
	14	Upper Willamette River	Threatened	
	15	Central Valley Spring-run	Threatened	
	16	California Coastal	Threatened	
	17	Central Valley Fall and Late Fall-run	Species of Concern	
	18	Upper Klamath-Trinity Rivers	Not Warranted	
	19	Oregon Coast	Not Warranted	
	20	Washington Coast	Not Warranted	
	21	Middle Columbia River spring-run	Not Warranted	
	22	Upper Columbia River summer/fall-run	Not Warranted	
	23	Southern Oregon and Northern California Coast	Not Warranted	
	24	Deschutes River summer/fall-run	Not Warranted	
Coho Salmon ( <i>O. kisutch</i> )	25	Central California Coast	Endangered	
	26	Southern Oregon/Northern California	Threatened	
	27	Lower Columbia River	Threatened	• Critical habitat
	28	Oregon Coast	Threatened	
	29	Southwest Washington	Undetermined	
	30	Puget Sound/Strait of Georgia	Species of Concern	
	31	Olympic Peninsula	Not Warranted	
Chum Salmon ( <i>O. keta</i> )	32	Hood Canal Summer-run	Threatened	
	33	Columbia River	Threatened	
	34	Puget Sound/Strait of Georgia	Not Warranted	
	35	Pacific Coast	Not Warranted	
Steelhead ( <i>O. mykiss</i> )	36	Southern California	Endangered	
	37	Upper Columbia River	Threatened	
	38	Central California Coast	Threatened	
	39	South Central California Coast	Threatened	
	40	Snake River Basin	Threatened	
	41	Lower Columbia River	Threatened	
	42	California Central Valley	Threatened	
	43	Upper Willamette River	Threatened	
	44	Middle Columbia River	Threatened	
	45	Northern California	Threatened	
	46	Oregon Coast	Species of Concern	
	47	Southwest Washington	Not Warranted	
	48	Olympic Peninsula	Not Warranted	
	49	Puget Sound	Threatened	• Critical habitat
	50	Klamath Mountains Province	Not Warranted	
Pink Salmon ( <i>O. gorbuscha</i> )	51	Even-year	Not Warranted	
	52	Odd-year	Not Warranted	

**1** The ESA defines a “species” to include any distinct population segment of any species of vertebrate fish or wildlife. For Pacific salmon, NOAA Fisheries Service considers an evolutionarily significant unit, or “ESU,” a “species” under the ESA. For Pacific steelhead, NOAA Fisheries Service has delineated distinct population segments (DPSs) for consideration as “species” under the ESA.

**Page Title:** ESA MM List

**URL:** <http://www.nwr.noaa.gov/Marine-Mammals/ESA-MM-List.cfm>

## ESA-Listed Marine Mammals

Under the jurisdiction of NOAA Fisheries that may occur:

### off Washington & Oregon

- [Southern Resident killer whale](#) (*Orcinus orca*) (E); [critical habitat](#)
- [humpback whale](#) (*Megaptera novaeangliae*) (E)
- [blue whale](#) (*Balaenoptera musculus*) (E)
- [fin whale](#) (*Balaenoptera physalus*) (E)
- [sei whale](#) (*Balaenoptera borealis*) (E)
- [sperm whale](#) (*Physeter macrocephalus*) (E)
- [Steller sea lion](#) (*Eumetopias jubatus*) (T); [critical habitat](#)

### in Puget Sound

- [Southern Resident killer whale](#) (*Orcinus orca*) (E); [critical habitat](#)
- [humpback whale](#) (*Megaptera novaeangliae*) (E)
- [Steller sea lion](#) (*Eumetopias jubatus*) (T); [critical habitat](#)

(E) = Endangered

(T) = Threatened

Page last updated: 2010-06-15 11:08:13



[ESA Salmon Listings](#)  
 [ESA Regulations & Permits](#)  
 [Salmon Habitat](#)  
 [Salmon Harvest & Hatcheries](#)  
 [Marine Mammals](#)  
[Salmon & Hydropower](#)  
 [Salmon Recovery Planning](#)  
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[Home](#) > [Other Marine Species](#) > Green Sturgeon

Search

## North American Green Sturgeon

NOAA Fisheries received a petition in June 2001 from several environmental organizations requesting that the agency list the [north American green sturgeon \(\*Acipenser medirostris\*\)](#) under the Endangered Species Act. [Search NOAA Fisheries](#)

[Print Version](#)

**June 2, 2010:** NOAA Fisheries published final [Endangered Species Act protective regulations](#) (ESA 4(d) rule) for the southern distinct population segment of North American green sturgeon, and released a [final environmental assessment analyzing the environmental impacts of these ESA Section 4\(d\) rules](#). This population is under the jurisdiction of the NOAA Fisheries [Southwest Region](#), and this [information is on its Website](#).

[What's New](#)

[About the NWR](#)

[About this Website](#)

**Oct. 9, 2009:** NOAA Fisheries designated final Endangered Species Act critical habitat for the southern distinct population segment of North American green sturgeon. This population is under the jurisdiction of the NOAA Fisheries [Southwest Region](#), and most of the [information on critical habitat links to its Website](#).

[A-Z Index](#)

[Species Lists](#)

- [New release](#) (PDF 71KB)
- [Federal Register notice](#) (PDF 982KB)
- [GIS Data](#)

[Publications](#)

[Biological Opinions](#)

**Apr. 7, 2006:** NOAA Fisheries listed the southern distinct population segment, or DPS, of north American green sturgeon as threatened under the Endangered Species Act. This population is under the jurisdiction of the NOAA Fisheries [Southwest Region](#), and most of the [information on this final listing links to its Website](#).

[Public Consultation Tracking System \(PCTS\)](#)

[Site Map](#)

- [Federal Register notice](#) (PDF 100KB)
- [References for Federal Register notice](#) (PDF 87KB)
- [General Green Sturgeon Questions & Answers](#) (PDF 93KB)
- [Final Listing Questions & Answers](#) (PDF 119KB)

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Page last updated: September 7, 2011

**Page Title:** Eulachon

**URL:** <http://www.nwr.noaa.gov/Other-Marine-Species/Eulachon.cfm>

## Eulachon (Columbia River Smelt)

Eulachon, also known as Columbia River smelt, candlefish or hooligan, are found in the eastern north Pacific Ocean. They range from northern California to southwest Alaska and into the southeastern Bering Sea. Smelt typically spend three to five years in saltwater before returning to freshwater to spawn in late winter through mid spring.

**Jan. 5, 2011:** NOAA Fisheries announced that it proposed to designate critical habitat for the southern distinct population segment (DPS) of Pacific eulachon, and requested public review and comment. The comment period closed Mar. 7, 2011. See the *Federal Register* notice, below, for more information; or contact Marc Romano, 503-231-2200, in the Northwest, or Jim Simondet, 707-825-5171, in California. Two public meetings on this proposal were held Jan. 26, 2011, in Portland, Ore.

- [Media advisory](#)
- [Federal Register notice](#) (PDF 573KB)
- [Questions & Answers on eulachon proposed critical habitat](#) (PDF 55KB)
- [Eulachon proposed critical habitat overview maps](#) (PDF 5.6MB)
- [Biological Report](#) (PDF 3.5MB)
- [Economic Analysis](#) (PDF 1.7MB)
- [ESA Section 4\(b\)\(2\) Report](#) (PDF 737KB)
- [References for eulachon proposed critical habitat](#) (PDF 31KB)

**March 16, 2010:** NOAA Fisheries announced that it is listing the southern distinct population segment (DPS) of eulachon as threatened under the ESA. The listing became effective on May 17, 2010.

- [News release](#) (PDF 64KB)
- Mar. 18, 2010, [Federal Register notice](#) (PDF 103KB)
- [Citations for eulachon ESA listing](#) (PDF 52KB)
- [Questions & Answers on eulachon ESA listing](#) (PDF 50KB)
- [Updated status review of eulachon](#) (PDF 3.5MB)

Page last updated: 2011-09-20 21:11:35