Wildlife

In this Final EIS analysis, wildlife includes terrestrial (land) species, avian (bird) species, and marine mammals. Wildlife is part of an ecosystem, and the movements of wildlife (foraging, breeding, refuge, dispersal, and migration) affect and are affected by both the built and natural environment. Wildlife can affect habitat by consuming vegetation, insects, fish, or other animals; providing a source of prey and nutrients to other animals; and serving as a mechanism to disperse seeds. In the Grays Harbor area, wildlife diversity also helps support various aspects of the local culture and economy, including tourism. Wildlife is protected under federal, state, and local regulations.

Has any new information been developed since the Draft EIS?

No new wildlife issues were introduced and WSDOT did not conduct any new analysis beyond that which was done for the Draft EIS.

What regulatory programs protect wildlife?

Regulatory programs to protect wildlife exist at the federal, state, and local level. Federal agencies with jurisdiction over wildlife include USFWS and the NOAA Fisheries. USFWS is responsible for enforcing the Migratory Bird Treaty Act (16 USC 703 through 713) and the Bald and Golden Eagle Protection Act (16 USC 668-668c); NOAA Fisheries implements the Marine Mammal Protection Act (50 CFR 216). Both agencies have responsibilities under the ESA (16 USC 1536 (a)-(d)).

At the state level, the WDFW is charged with managing the wildlife resource, including designating and protecting state-listed endangered, threatened, and candidate species (WAC 232-12-014 and WAC 232-12-011) as well as Priority Habitats and Species. WDFW also oversees Hydraulic Project Approvals and establishes permit conditions for in-water work consistent with RCW 77.55 and WAC 220-110. Local governments might choose to designate fish and wildlife conservation areas, including species of local concern, in compliance with the Growth Management Act (RCW 36.70A).

What wildlife species live in and/or use the study area?

WSDOT biologists evaluated wildlife and habitat within one-half mile of the Grays Harbor build alternative sites because using either site could affect wildlife and habitats in this area. No site-specific wildlife analysis was conducted at the CTC facility because the site provides little to no natural vegetation or resources that support wildlife.

During the spring of 2008, WSDOT conducted a series of field surveys to document wildlife on the IDD #1 site, which at that time was being considered as a project alternative. (As discussed in Chapter 2, Project Alternatives, the IDD #1 site was dismissed from further analysis in February 2009). The IDD #1 site borders the Anderson & Middleton site and is approximately 2 miles from the Aberdeen Log Yard site. Based on the IDD #1 site's proximity to both build alternative sites, as well as the similarity of the habitat conditions at all three sites, data from surveys at the IDD #1 site are considered to be representative of species use of the surrounding area, including both Grays Harbor build alternative sites.

CTC Facility

As stated above, no site-specific wildlife analysis was conducted at the CTC facility because the site provides little to no natural vegetation or resources that support wildlife.

Grays Harbor Build Alternatives

Both Grays Harbor build alternative sites are degraded habitat used by a wide variety of animal species, including birds, amphibians, reptiles, and mammals. (The actual species present vary with the season.) During April and May 2008, surveys at the IDD #1 site documented 53 bird species and garter snakes (*Thammophis* spp.), Pacific chorus frog (*Pseudacris regilla*), blacktail deer (*Odocoileus hemionus columbianus*), and harbor seal (*Phoca vitulina*). A full list of the observed species is provided in Appendix C, the Ecosystems Discipline Report. The most commonly occurring bird species within Grays Harbor are listed below, in descending order of occurrence, as observed during Christmas bird counts between 1974 and 2008 (Audubon Society 2008):

- European starling (*Sturnus vulgaris*)
- Mallard (*Anas platyrhynchos*)
- Gulls (*Larus* spp.) and terns (*Hydroprogne caspia*, others)
- Canada goose (*Branta canadensis*)
- Northern pintail (*Anas acuta*)
- Western sandpiper (*Calidris mauri*)
- Song sparrow (*Melospiza melodia*)
- Killdeer (*Charadrius vociferus*)
- Red-tailed hawk (*Buteo jamaicensis*)

Many birds in the study area and general vicinity use the dense riparian forest and shrub habitat, emergent wetland, and grassland habitat on the sites and nearby for migration and, possibly, nesting. There is more such habitat on the Anderson & Middleton site than the Aberdeen Log Yard site. The emergent wetland and grassland in the study area could

provide habitat for Canada geese, ducks, and migrating shorebirds that forage in the wetland, but nesting within the emergent wetland and grassland at the Anderson & Middleton site is unlikely, given the lack of plant diversity and the proximity of higher quality habitat in the vicinity. The steep shoreline and general lack of emergent wetland connected to the estuary also limit nesting and foraging opportunities for shorebirds in the study area. The smaller Aberdeen Log Yard site provides even less nesting and foraging opportunities than the Anderson & Middleton site. The narrow zone of shoreline habitat at the Anderson & Middleton site—between the north navigation channel of Grays Harbor and the steep rock berm surrounding much of the site—provides some foraging habitat for shorebirds. Comparable foraging habitat at the Aberdeen Log Yard site is more limited in quantity and quality.

Waterfowl live in Grays Harbor year round, but their numbers are largest during spring and fall migrations. American wigeons are the most common species during fall and winter, making up nearly 60 percent of the waterfowl population. Mallards, green-winged teals, and northern pintails are also common during the fall (USFWS 1990). More detail on bird use in the project vicinity, including at the Grays Harbor National Wildlife Refuge, is documented in Appendix C, Ecosystems Discipline Report.

Federal- or State-Listed or Protected Wildlife Species or Habitat

USFWS initially identified six federally listed wildlife species and two federal candidate species as potentially existing in Grays Harbor County (USFWS 2008a). Since that list was developed, one species (brown pelican) was removed from the federal list of endangered species (74 FR 59443), although it is still included in this discussion. In addition, there are harbor seals and bald eagles in the county, which are federally protected under the Marine Mammal Protection Act of 1972 and the Bald and Golden Eagle Protection Act, respectively. The study area contains potentially suitable foraging habitat for brown pelicans, marbled murrelets, bald eagles, harbor seals, and gray whales. Rennie Island (shown on Exhibit 3-3) provides potentially suitable nesting habitat for yellow-billed cuckoos, but this species no longer breeds in Washington (see Exhibit 3.1-8).

EXHIBIT 3.1-8
ESA-Listed Wildlife Species in Grays Harbor County

Species	Federal Status	Suitable Habitat Existence	ESA Effects Determination	Rationale for ESA Effects Determination
Marbled murrelet *(Brachyramphus marmoratus)*	Threatened	Suitable foraging habitat exists in Grays Harbor, primarily in mid- and outer estuary. Suitable nesting habitat exists within 3 miles of study area, to the south.	Not Likely to Adversely Affect (NLAA)[a]	Discountable possibility that individual murrelets could be exposed to effects from project construction or operation
Northern spotted owl *(Strix occidentalis caurina)*	Threatened	No suitable mature or old-growth forests exist within 5 miles of study area.	No Effect[a]	No suitable habitat or documented occurrences in action area
Short-tailed albatross *(Phoebastria albatrus)* [outer coast]	Endangered	Pelagic species nest on isolated islands; no suitable habitat exists for this species in Grays Harbor.	No Effect[a]	No suitable habitat in action area
Western snowy plover *(Charadrius alexandrinus nivosus)*	Threatened	Suitable nesting beaches and known nesting activity exists at Damon Point (8 to 10 miles from study area for the build alternatives, and 4 miles from the moorage site).	No Effect[a]	No suitable habitat in action area
Streaked-horned lark *(Eremophila alpestris strigata)*	Candidate	Suitable nesting beaches and known nesting activity exist at Damon Point (8 to 10 miles from study area for the build alternatives, and 4 miles from the moorage site).	No Effect[a]	No suitable habitat in action area
Yellow-billed cuckoo *(Coccyzus americanus)*	Candidate	Potentially suitable nesting habitat exists in forested and scrub-shrub wetland on Rennie Island. This species no longer breeds in Washington (Smith et al 1997).	No Effect[a]	No longer breeds in Washington
Oregon silverspot butterfly *(Speyeria zerene hippolyta)*	Threatened	No suitable coastal salt-spray meadows or open-field habitats with larval host plant, western blue violet (*Viola adunca*), exist in study area.	No Effect[a]	No suitable habitat or documented occurrences in action area
Southern resident killer whale (*Orcinus orca*)	Endangered and protected under federal Marine Mammal Protection Act	Occasionally seen in waters offshore of Grays Harbor; there is no evidence that sightings from within Grays Harbor are of residents, rather than transient whales (which are more common in coastal waters).	Not Likely to Adversely Affect (NLAA)[b]	Discountable possibility that killer whales could be exposed to effects from project construction or operation

EXHIBIT 3.1-8
ESA-Listed Wildlife Species in Grays Harbor County

Species	Federal Status	Suitable Habitat Existence	ESA Effects Determination	Rationale for ESA Effects Determination
Steller sea lion (*Eumetopias jubatus*)	Threatened and protected under federal Marine Mammal Protection Act	Individuals might venture into Grays Harbor; nearest known haul-out site is approximately 35 miles away.	Not Likely to Adversely Affect (NLAA)[b]	Discountable possibility that individual sea lions could be exposed to effects from project construction or operation
Humpback whale (*Megaptera novaeangliae*)	Endangered and protected under federal Marine Mammal Protection Act	Might feed in offshore waters during summer; individuals may venture into Grays Harbor.	Not Likely to Adversely Affect (NLAA)[b]	Discountable possibility that individual whales could be exposed to effects from project construction or operation

[a] This determination is supported and documented in the July 2010 Biological Assessment for the SR 520 Pontoon Construction Project, USFWS Reference Number 13410-2010-F-0497 (WSDOT 2010d). A formal Biological Opinion from USFWS concurring with this determination is expected in December 2010.

[b] This determination is final. WSDOT received concurrence on this finding from NOAA Fisheries, documented in the Biological Opinion received in October 2010, NOAA Fisheries Tracking Number 2010/03543 (NOAA 2010).

Several federally listed species of wildlife under the jurisdiction of NOAA Fisheries might occur in the waters of Washington State. These include species of whales, and sea turtles.Two state-listed sensitive species (peregrine falcon and bald eagle) are known to use suitable habitat near the study area (WDFW 2008b). In addition, five other state priority species—the western grebe, common loon, great blue heron, purple martin, and harbor seal—have been observed close to the build alternative sites and might occasionally be on or near either build alternative site (see Exhibit 3.1-9).

EXHIBIT 3.1-9
Additional Federally Protected, State-Listed, and State Priority Wildlife Species that Might Occur in the Study Area

Species	Status	Potential Use of Study Area
Common loon (*Gavia immer*)	State Sensitive	Common loons are regularly observed foraging for fish immediately offshore of the Anderson & Middleton site. They are likely also present offshore of the Aberdeen Log Yard site.
Western grebe (*Aechmophorus occidentalis*)	State Candidate	Western grebes occasionally forage for small fish in waters adjacent to both sites. No known breeding sites exist in the study area.
Brown pelican *(Pelecanus occidentalis)*	State Endangered, Federal Species of Concern, protected by Migratory Bird Treaty Act	Suitable foraging habitat for nonbreeding pelicans exists in Grays Harbor, primarily in the mid- and outer estuary during summer and fall.

EXHIBIT 3.1-9
Additional Federally Protected, State-Listed, and State Priority Wildlife Species that Might Occur in the Study Area

Species	Status	Potential Use of Study Area
Great blue heron (*Ardea herodias*)	State Monitor	An active rookery is on Rennie Island. Birds regularly forage in wetlands on the Anderson & Middleton site and in the study area.
Bald eagle *(Haliaeetus leucocephalus)*	State Sensitive, Federal Species of Concern, protected by Bald and Golden Eagle Protection Act	Nesting territory exists on Rennie Island. Bald eagles forage on fish and waterfowl throughout Grays Harbor and perch on natural and manmade structures. Eagles might perch on the piles at either build alternative site.
Peregrine falcon (*Falco peregrinus*)	State Sensitive, Federal Species of Concern	The Anderson & Middleton site, approximately the southern half of the Aberdeen Log Yard site, the mouth of the Hoquiam River, and intertidal habitats associated with Rennie Island are all mapped as a regular concentration area for peregrine falcons. They are known to forage in intertidal habitats along the Hoquiam waterfront and perch on trees, piles, and tall structures, including Hoquiam River bridge.
Purple martin (*Progne subis*)	State Candidate	Martins nest in piles within the study area. They forage for insects over the emergent wetlands in the study area.
Harbor seal *(Phoca vitulina)*	State Monitor, protected under federal Marine Mammal Protection Act	Seals forage in the waters of Grays Harbor and lower Hoquiam and Chehalis Rivers. Important haulout and pupping sandbars exist throughout the mid- and outerestuary. Individuals are regularly seen just offshore from both build alternative sites.
Gray whale *(Eschrichtius robustus)*	State Sensitive, Protected under federal Marine Mammal Protection Act	Individuals regularly use and feed in outer Grays Harbor, however they have not historically been observed using areas east of the Grays Harbor National Wildlife Refuge.

WDFW identifies nonbreeding concentrations of shorebirds and waterfowl as priority species (see the sidebar description of state priority species in the *Fish and Aquatic Resources* section). Large concentrations of these species groups exist throughout Grays Harbor, particularly along shorelines and in intertidal zones. Neither build alternative site includes areas mapped by WDFW as large shorebird and waterfowl concentrations, although there are such areas in the general vicinity—most prominently near the Grays Harbor National Wildlife Refuge. The refuge, which is less than 2 miles west of the Anderson & Middleton Alternative site, and other locations nearby provide additional resting and foraging habitat for waterfowl in and around the study area. State priority habitats in the project vicinity include estuarine

wetlands and freshwater wetlands, estuarine shorelines, and the vegetated estuarine habitats (for example, eelgrass) (WDFW 2008a).

Federal- or State-Listed or Protected Wildlife Species and Habitat near Proposed Pontoon Moorage Location

Grays Harbor provides suitable nesting habitat for snowy plovers and streaked horned larks and suitable foraging habitat for marbled murrelets, all of which are listed or candidates for listing under the federal ESA. Federally protected marine mammals might occasionally travel through the pontoon moorage location vicinity.

Snowy Plover

The Damon Point and Oyhut Wildlife Area, approximately 4 miles west of the proposed pontoon moorage location, supports one of three known active breeding grounds for snowy plovers in Washington (Richardson 1995; WDFW 2008a). Snowy plovers of the Pacific Coast population typically nest on flat, sandy areas with little or no vegetative cover, such as on barrier beaches, dry lake beds, and salt flats (Wilson-Jacobs and Meslow 1984; Palacios et al. 1994). The birds generally nest above the high tide line on coastal beaches, sand spits, dune-backed beaches, and sparsely vegetated dunes; along beaches at creek and river mouths; and on salt pans at lagoons and estuaries. Snowy plovers nest from late April to late June (Wahl et al. 2005), with females laying two to three clutches of three eggs annually (Page et al. 1995). A major limiting factor for some populations is nest predation by gulls, ravens, and mammals (Page et al. 1983).

Streaked Horned Lark

Along with snowy plovers, streaked horned larks have been documented breeding at the Damon Point and Oyhut Wildlife Area (WDFW 2008a). The breeding range of this bird in Washington appears to be restricted to isolated locations at the south end of Puget Sound, on the outer coast, and in the Columbia River estuary (Stinson 2005). Nesting and foraging habitat in coastal areas includes open dune sites with unstable substrate and little or no vegetation, such as sand spits and dune-backed beaches (Richardson 1995; Rogers 2000; Stinson 2005). Stinson (2005) identified crows as the major predators of streaked horned lark nests in Washington.

Marbled Murrelet

Marbled murrelets forage in marine waters and nest in old-growth coniferous forest. The nearest known nesting site is within 3 miles of the study area. Speich and Wahl (1995) reported that, over a 23-year period, few marbled murrelets were recorded in Grays Harbor Channel (near the outer estuary) in every month of the year. The lowest occurrences were

in July, August, and September (Speich and Wahl 1995). The general pattern of marbled murrelet occurrence was one of high average densities during the spring, fall, and winter, with higher densities in habitats closer to coastal shoreline.

Marbled murrelets are not known to use the areas surrounding either proposed build alternative site. This portion of Grays Harbor does not support significant numbers of murrelet prey, provides little or no suitable foraging habitat, exhibits a strong riverine influence not typical of the species' preferred foraging habitat, and has been degraded as a result of heavy industrial and maritime use.

Marine Mammals

Approximately 29 species of marine mammals breed, rest within, or migrate through the waters off the Washington coast (NMFS 1992; NOAA 1993). Most of these are found only in offshore waters and are unlikely to venture into shallow, enclosed habitats such as Grays Harbor. A search of the Orca Network sightings archives from 2001 through 2009 yielded sightings of killer whales in Grays Harbor on several occasions, as well as isolated observations of gray whales, humpback whales, and pilot whales (Orca Network 2009). There are harbor seal haulout sites throughout Grays Harbor, including sites where pupping occurs (WDFW 2008a). Harbor porpoise, California sea lion, and Steller sea lion are the other marine mammal species that might occur in Grays Harbor. Appendix C, the Ecosystems Discipline Report, includes additional detail on marine mammal use of Grays Harbor.

What are the habitat characteristics of the CTC site?

The CTC site is nearly fully built out and offers little to no wildlife habitat. The CTC facility is an actively used casting basin facility located within the industrial zone of the Port of Tacoma, an active deep-water port. The Port was established more than 100 years ago, and its construction led to the dredge and fill of intertidal mudflats and wetlands to develop usable land to support the burgeoning timber industry.

Aquatic habitat in the Commencement Bay area has been substantially degraded from predevelopment conditions by extensive fill and shoreline armoring projects, as well as the ongoing noise and pollutants that typify an industrial area.

What are the habitat characteristics of the Grays Harbor area and build alternative sites?

From a habitat perspective, the native vegetation and wildlife habitat at both Grays Harbor build alternative sites is characterized by a history of natural resource extraction and industrial land use development patterns in the area. Much of the forests in and around Grays Harbor were logged during the late nineteenth century and early twentieth century, which resulted in adverse effects on both terrestrial habitat (by removing forests) and aquatic habitat (by greatly increasing sedimentation and erosion entering streams and rivers after logging). Many streams and rivers were straightened and widened to function as log transporting systems, which also negatively affected wildlife habitat.

As noted in the *Wetlands* section, many of the harbor's natural features were modified by dredging and filling intertidal estuaries to create lands suitable for development, again changing habitat. The navigation channel continues to be dredged annually to maintain shipping access into the harbor.

Although both build alternative sites are located within industrially zoned portions of Aberdeen and Hoquiam, these jurisdictions are fairly small and surrounded by relatively rural and undeveloped lands that provide terrestrial and aquatic habitat. Bowerman Basin, an important shorebird foraging site at the Grays Harbor National Wildlife Refuge, lies within 2 miles of the Anderson & Middleton site. Grays Harbor is one of the largest estuaries along the West Coast and an important resource to migrating shorebirds and waterfowl (USACE 1998). Marine mammals, including harbor seals, and migratory gray whales also use Grays Harbor.

The pontoons would be moored approximately 2 miles from the nearest shoreline, in the vicinity of Whitcomb Flats (see Exhibit 2-8 in Chapter 2). The town of Ocosta and Bottle Beach State Park are located along the shoreline of Grays Harbor in this vicinity. Marine mammals such as harbor seals use the waters of Grays Harbor, including the pontoon moorage area. Gray whales also migrate along the West Coast and have been observed within Grays Harbor. Shorebirds feed on the rich supply of invertebrates in the mudflats within Grays Harbor. (Shorebird use is seasonal during migration.) Waterfowl and raptors use the intertidal areas as well. Shorebird use of Grays Harbor is documented in detail in Appendix C, Ecosystems Discipline Report.

Aberdeen Log Yard Alternative (Preferred Alternative)

The Aberdeen Log Yard site is more heavily developed than the Anderson & Middleton site and is an active log storage facility with limited habitat structural diversity and few vegetative features that support many wildlife species. The estuarine, rocky shore, emergent wetlands along the shoreline do provide some foraging for shorebirds and waterfowl in the area; these areas encompass approximately 0.5 acre of the total site.

More than half of the 51-acre site is used now as an access road or log storage area. The remainder of the site is characterized by the fill material used to develop the site and occasional swales intended to drain the site. Combined, these areas encompass approximately 16 acres of the current site. The swales pond water seasonally and might be used for breeding and rearing by common species, such as chorus frogs.

Anderson & Middleton Alternative

The Anderson & Middleton site was formally used for log storage, and former site operators interspersed log storage areas with drainage swales in a regular pattern to drain the site. These swales now contain sedges, rushes, and grasses and tend to pond water, especially during the winter. These swales might provide breeding and rearing habitat for chorus frogs, as well as shelter, protection, and forage areas for passerine bird species (birds with feet adapted for perching). The log storage areas are intermittently covered with grasses and compacted gravel and fill material and provide little habitat for birds, mammals, or reptiles using the area.

The western portion of the site, which would not be directly affected by construction of the casting basin, is more heavily dominated by grasses with interspersed patches of blackberry. An established alder-dominated forest runs along the southwestern edge of the site. The alder forest together with the grassy area in the western portion of the site encompasses approximately 19 acres and provides the best wildlife habitat on the site. This portion of the site is likely used by passerine birds, small mammals, reptiles, and amphibians within the study area.

How did WSDOT evaluate direct effects on wildlife?

WSDOT mapped wildlife habitat within the study area, identifying basic landscape cover types within one-half mile of each site and the specific wildlife habitats within each cover type. The classification included estuarine habitats; wetlands; riparian areas; residential, urban, and

industrial areas; and upland forests. Next, WSDOT reviewed proposed structures and project actions relative to mapped wildlife habitat and determined potential effects. WSDOT based the effects analysis on an assessment of potential changes in the availability and distribution of identified habitats, as well as the potential for disturbance from construction and related activities.

In addition to gathering information on wildlife and habitat within the boundaries of the study area, WSDOT ecosystem analysts collected information for the Grays Harbor estuary, offsite pontoon moorage locations, and areas near the proposed facilities. WSDOT also obtained information on wildlife from several other sources, including WDFW Priority Habitats and Species data (WDFW 2008a) and the USFWS list of federally listed species that are known or expected to occur in Grays Harbor County (USFWS 2008a). To supplement the existing data, WSDOT investigated field conditions and reviewed aerial photographs to identify habitat types and elements in the study area.

The process of ESA consultation with USFWS and NOAA Fisheries about the potential for effects on ESA-listed wildlife species is discussed under *What is the Endangered Species Act consultation process?* in the Fish and Aquatic Resources section earlier in this chapter.The Biological Assessment for this project documents the consultation process and evaluates the potential effects on ESA-listed species and habitat. For the analysis of effects on marine mammals, WSDOT, in consultation with NOAA Fisheries, assessed the potential for project activities to disturb marine mammals, as well as the potential for moored pontoons to provide haulout sites or influence wildlife foraging opportunities.

In the context of consultations with NOAA Fisheries and USFWS under the ESA, a determination of 'no effect' means the proposed project would have no effect whatsoever on a particular species. A determination of 'not likely to adversely affect' indicates that the potential for effects is discountable or that the effects are possible but the consequence would be insignificant, or both. Thus, for some of the species, WSDOT, in consultation with USFWS and NOAA Fisheries, determined that a 'no effect' determination would not be appropriate because there is a possibility (albeit small) that an individual might be exposed to construction-related noise. In these instances, there is a discountable chance of exposure and/or an insignificant chance of effect. In these instances, the determination is 'not likely to adversely affect,' as listed in Exhibit 3.1-8. The Biological Assessment for the proposed SR 520 Pontoon Construction Project includes additional detail on a broader range of species, including the rationale for effects determinations (WSDOT, 2010d).

How would construction of the casting basin directly affect wildlife and their habitat?

Developing the casting basin at either Grays Harbor build alternative site would likely eliminate use by many wildlife species (including federally protected and state priority species) because existing vegetation would be removed and replaced with built structures and the laydown area.

Aberdeen Log Yard Alternative (Preferred Alternative)

Almost all existing vegetative cover (approximately 16.5 acres) would be eliminated at the Aberdeen Log Yard Alternative site as a result of casting basin construction. This includes approximately 5 acres of upland forest habitat and approximately 1.1 acres of wetland (both palustrine and estuarine). In addition, approximately 300 of the 1,700 linear feet of the existing shoreline habitat at the Aberdeen Log Yard site would be converted to build the launch channel. Launch channel construction would alter approximately 3 acres of intertidal mudflat and subtidal areas, thereby affecting the intertidal habitat in this area.

Wildlife that might use this habitat type include raptors, waterfowl, passerine bird species, amphibians, and reptiles; harbor seals have been seen offsite in the waters of Grays Harbor, as well as a variety of bird species that forage in and around the Grays Harbor area. These animals would be displaced and would likely no longer use this site as roosting, resting, or foraging areas as a result of construction activities.

Noise and human activity associated with constructing the new casting basin facility could disturb wildlife. The degree of disturbance would depend on the noise level, the timing and duration of construction activities, and the sensitivity of individual animals. Most animals that use habitats at or near the Aberdeen Log Yard site are likely accustomed to urban conditions, including loud noises, vehicle traffic, and the presence of humans. Individual animals that are sensitive to such disturbance would likely avoid the area. Potential noise levels associated with construction activity would depend on many factors, including the specific machinery and equipment being used and the conditions of the site undergoing excavation. Some activities, such as pile-driving, would be substantially louder than existing activities and could temporarily displace some animals or prevent them from using suitable habitat in areas adjacent to the site. In extreme cases, birds could abandon their nests in response to noise disturbance.

Federally protected bird species that could exist in the study area include brown pelican, marbled murrelet, and bald eagle, all of which might forage in the study area. State priority species that might forage in the study area include peregrine falcon, western grebe, common loon, great blue heron, and purple martin. If any individuals of these species are present while construction activities are underway, their feeding activities could be disrupted by increased levels of noise and human activity. Such effects would be temporary and localized and would not likely have a measurable effect to individual or local populations. Similarly, construction activities could disrupt the breeding behavior of individual purple martins and great blue herons in the short term during a single nesting season.

Lighting associated with nighttime construction could also disturb wildlife. The Aberdeen Log Yard site and immediately adjacent areas are dominated by industrial activity; sites with relatively low light levels are likely scarce in this area. Species that rely on low nighttime light levels probably avoid the area now, and constructing a new casting basin facility would not likely cause new disturbance.

In the marine environment, pile-driving for the permanent launch channel piles and the turning dolphins could result in underwater noise levels high enough to disturb wildlife. Approximately 70 in-water piles would be required for launch channel construction at the Aberdeen Log Yard site. Individual piles are anticipated to require up to 10 minutes of impact pile-driving; therefore, the total duration of impact pile-driving is expect to be up to approximately 10 hours spread over several days or weeks during the published in-water work period when juvenile fish are not expected to be present. WSDOT would avoid impact pile-driving, which causes the highest noise levels, to the maximum extent possible.

The effects of pile-driving on wildlife would depend on many factors, including the nature of the sediment (soft versus hard), the type of pile (timber or steel), the type of hammer used (impact versus vibratory), and the distance of animals from the activity. Even under conditions that would generate the highest noise levels (i.e., driving steel piles into hard sediment with an impact hammer), the potential for marine mammals to be present in the area of active pile-driving is very low. Most species of marine mammals, including all three ESA-listed species, are extremely unlikely to be present in Grays Harbor while pile-driving is underway. Any animals that are in the area (primarily harbor seals) would likely be scared away by construction-related noise and human activity before any pile-driving begins.

Due to the short durations of impact pile-driving and the low likelihood that marine mammals (which are protected under the Marine Mammal

Protection Act and/or the ESA) or diving seabirds (including marbled murrelets, which are protected under the ESA) would be present during pile-driving activities, underwater noise is not expected to have an appreciable effect on protected species. WSDOT, in consultation with NOAA Fisheries, will use best available information to determine the most efficient installation method to minimize the pile-driving process and associated biological effects on fish and wildlife.

In addition to using installation practices and sound attenuation methods that minimize adverse biological effects, WSDOT would employ appropriate and available best management practices during construction to minimize sound pressure being generated and transmitted as a result of pile-driving. Examples of such practices would include driving piles during low tide and approved work windows (as specified by WDFW, NOAA Fisheries, and/or USFWS). WSDOT is coordinating with NOAA Fisheries and the USFWS on this and other issues as part of the ESA consultation process for the project, as discussed under *What is the Endangered Species Act consultation process?* in the Fish and Aquatic Resources section earlier in this chapter.

The Biological Assessment for this project determined that casting basin facility construction and pontoon-building operations at the Preferred Alternative site, as well as pontoon moorage in Grays Harbor, would not likely adversely affect four ESA-listed wildlife species: marbled murrelet, southern resident killer whale, Steller sea lion, and humpback whale (see Exhibit 3.1-8). The Biological Assessment included a determination of no effects for all other ESA-listed wildlife species that might occur in Grays Harbor County and for listed marine mammals and turtles that might occur in the Pacific coastal waters of Washington.

Anderson & Middleton Alternative

Developing the casting basin facility and pontoon launch channel would eliminate the 32 acres of existing vegetative cover and a 300-foot-wide by 100-foot-long area of the shoreline. This area includes approximately 4.8 acres of emergent wetland and intertidal habitat. Wildlife using this area, such as small mammals, passerine birds, amphibians and reptiles, would be displaced during construction.

Construction would not directly affect a 40-acre area of vegetated land on the western portion of the Anderson & Middleton property, and existing habitat and vegetative cover would remain on this portion of the property. This area comprises primarily herbaceous and shrub wildlife habitat, but also provides grassland habitat, emergent wetland habitat, and high-quality estuarine wetland habitat. This area would remain available for use by wildlife in the vicinity, although use of the area

might be adversely affected by construction noise, lighting, and disturbance.

Because of the Anderson & Middleton site's proximity to the Grays Harbor National Wildlife Refuge, WSDOT measured ambient noise levels along the proposed haul route that passes by the Grays Harbor National Wildlife Refuge along Paulson Road (see Section 3.10, Noise, later in this chapter). Using the haul route along Paulson Road would increase noise levels and result in an elevated risk of disturbance to shorebirds and other wildlife using the refuge. As discussed later in Section 3.10, noise levels at the Grays Harbor National Wildlife Refuge would likely increase by 5 to 12 decibels, ranging from 54 to 71 decibels, during peak hauling along Paulson Road. (Although the dBA scale reflects the hearing sensitivity of humans rather than wildlife, these values provide a sense of the relative magnitude of the anticipated increase; a 10-dbA increase is typically perceived as a doubling of loudness.) Based on the small proportion of the refuge area that would be affected by noise level increases and the availability of suitable habitat away from the proposed haul route, WSDOT does not anticipate that this increase would substantially alter shorebirds or other wildlife use of the refuge.

In the marine environment, the intensity of pile-driving noise would likely be similar to that anticipated for the Aberdeen Log Yard site; the duration, however, would probably be longer because of the greater pile lengths needed for the Anderson & Middleton site. The potential for effects to marine mammals would be similar to those described for the Aberdeen Log Yard Alternative. An appreciable effect on protected species is not expected because of the short duration of the pile-driving and the unlikely presence of marine mammals or diving seabirds in the project area.

How would pontoon-building operations directly affect wildlife and their habitat?

CTC Facility

The CTC facility is already constructed and operating. The project's use of this facility to build pontoons is consistent with construction activities currently happening at the facility. Therefore building pontoons at the CTC facility would not result in any new effects on wildlife or wildlife habitat.

Grays Harbor Build Alternatives

During the 2 years of pontoon construction at either Grays Harbor site, noise and activities associated with operating the casting basin facility,

including maintenance dredging, would likely disturb wildlife that use the limited habitat that remain within and adjacent to either site. The effects of disturbance—including displacing and disrupting feeding or breeding activities—would be similar to those associated with constructing the casting basin. The area in which wildlife would be affected would likely be smaller, however, because pontoon construction would not entail pile-driving. Similar to construction-related effects, the degree of disturbance would depend on noise level, the timing and duration of activities, and the sensitivity of the individual animals. Most pontoon-building operations would take place in upland habitats and would have no effect on marine mammals.

WSDOT analysts also considered the potential for disturbance of wildlife at the Grays Harbor National Wildlife Refuge. The likelihood and potential effects of disturbance at the refuge are addressed in detail above, in the analysis of the effects of casting basin construction.

Aberdeen Log Yard Alternative (Preferred Alternative)

As described in the analysis of the effects of casting basin construction above, almost all existing vegetative cover at the Aberdeen Log Yard site would be eliminated as a result of casting basin construction. For this reason, wildlife would not likely be present at this site during pontoon-building operations. Wildlife using remaining patches of habitat in adjacent areas might be subject to disturbance, as described above. Pontoon-building operations at the Aberdeen Log Yard site would not affect the Grays Harbor National Wildlife Refuge because the site is over 5 miles away from the refuge.

Anderson & Middleton Alternative

The potential for pontoon-building operations to affect wildlife use at the Anderson & Middleton site would be greater than with the Aberdeen Log Yard site because approximately 40 acres of existing vegetation would remain at the Anderson & Middleton site immediately adjacent to proposed project operations. Nighttime lighting, noise, and increased levels of human activity might cause some species to avoid using this habitat while pontoon building takes place. Based on the small proportion of the Grays Harbor National Wildlife Refuge area that could be affected by noise level increases and the availability of suitable habitat away from the proposed truck haul route, WSDOT does not expect increases in noise levels during pontoon-building operations at the Anderson & Middleton site to substantially alter the use of the refuge by shorebirds or other wildlife.

How would pontoon moorage directly affect wildlife?

WSDOT does not anticipate any adverse effects on wildlife due to pontoon moorage, although plate anchor installation could disturb marine mammals nearby. Resource agencies have raised concerns about potential effects on seals, sea lions, and bird species. WSDOT does not expect that seals or sea lions would haul out of the water and rest on the pontoons because the pontoons would rise approximately 15 feet out of the water, and these animals would be unable to scale the vertical side walls to reach the top surface. Eighteen mooring buoys would likely hold the pontoon rafts in place. Seals and sea lions might use these buoys as haulout locations, although these species already have established haulout locations within Grays Harbor (see Appendix C). Anchor cables and mooring dolphins would not likely impede moving these or other marine mammals, which are adapted to navigating around obstacles in low-visibility situations.

The moored pontoons would not likely provide attractive habitat for birds because the pontoons would be exposed to wind and waves and would not provide refuge from these elements. WSDOT is investigating best management practices to further discourage pontoon use by birds, and will consider use of such practices as appropriate.

WSDOT will not transport pontoons out of Grays Harbor as part of this project. Instead, pontoons would be moved as either part of an emergency action or as part of the I-5 to Medina: Bridge Replacement and HOV Project. For those actions, WSDOT would inspect the pontoons for colonization by invasive species before towing pontoons out of Grays Harbor. If warranted, the pontoons could be cleaned before being transported out of Grays Harbor to prevent invasive species, such as green crab, from being transported into Puget Sound.

Effects on Federal- and State-Listed or Protected Species

Snowy Plover

WSDOT does not expect that temporarily mooring concrete pontoons in Grays Harbor would adversely affect snowy plovers nesting at Damon Point. In light of the distance between the proposed moorage location and Damon Point (4 miles), noise and human activity associated with pontoon installation and maintenance would be unlikely to disturb nesting plovers. Pontoon moorage also would not likely result in increased nest predation from gulls or other birds nesting, roosting, or perching on the pontoons. Existing vegetation and other structures adjacent to Damon Point provide ample nest, roost, and perch sites for

crows and other avian predators, and the presence of moored pontoons 4 miles away would not change this. In addition, WSDOT and USFWS would implement measures (such as wrapping exposed portions of the pontoons with chicken wire) to deter birds from landing on the pontoons. Furthermore, if any predatory birds were to use the pontoons, numerous seabird nesting colonies on islands within Grays Harbor would provide foraging opportunities closer to pontoon moorage site than Damon Point. In addition, those islands and other natural features within and adjacent to Grays Harbor would provide higher-quality habitat that would likely be more attractive to birds than the pontoon rafts.

Streaked Horned Larks

As with snowy plovers, the nearest known suitable habitat for streaked horned larks is at Damon Point, 4 miles away from the proposed mooring location. For this reason, the potential for temporary moorage of pontoons in Grays Harbor to adversely affect streaked horned larks would be the same as described above for snowy plovers.

Marbled Murrelet

The potential for marbled murrelets to be actively foraging near anchor installation activities would depend on numerous factors that cannot be predicted, such as weather conditions —including time of year and the location of prey species. It is not possible, therefore, to precisely determine whether murrelets would be in the area when anchor installation is underway; however, the number of individuals present would be expected to be low. If murrelets are present, however, the potential for noise-related effects is low because the plate anchors used to secure the pontoons would be installed with a vibratory hammer rather than with impact pile driving; therefore, WSDOT does not expect any noise effects on marbled murrelets.

Once the pontoons are in place, fish attracted to the pontoon moorage area might serve as prey for foraging murrelets. WSDOT does not anticipate that murrelets foraging near the moored pontoons would be at an elevated risk of predation. Raptors and other potential murrelet predators would not likely use the pontoons as nesting, roosting, or perching sites because measures would be in place to deter this; further, existing vegetation and other structures elsewhere in and around Grays Harbor would continue to provide more attractive sites. Resource agencies have raised a concern that fishing nets and gear might become ensnared on the pontoon anchor cables. These derelict nets then could, in turn, entangle foraging murrelets. To minimize the risk of adverse effects due to entanglement, WSDOT will inspect the moorage lines once a year and remove any nets.

Marine Mammals

Installing the plate anchors to secure the moored pontoons might result in minor disturbance to any marine mammals in nearby waters. As mentioned above, since WSDOT does not propose impact pile-driving (vibratory pile-driving would be used instead) to install the anchors, the risk of injury to marine mammals from high underwater sound exposure levels would be very low. Once the pontoons are in place, fish attracted to the moorage site might become prey for harbor seals and other marine mammals. Mooring buoys used to anchor the pontoons might also provide haulout sites for seals and sea lions, unless measures are taken to discourage such use. Based on the widespread availability of suitable haulout sites in Grays Harbor, WSDOT does not expect that the mooring buoys would result in any changes in the abundance or distribution of seals or sea lions near the moored pontoons.

How would the build alternatives compare in their effects on wildlife?

Exhibit 3.1-10 summarizes and compares the direct effects of the Anderson & Middleton and Aberdeen Log Yard build alternatives on wildlife. Developing a casting basin and associated structures would require using an approximately 55-acre area at both sites; much of this area is classified as existing industrial land. The Anderson & Middleton property is much larger than the Aberdeen Log Yard property, and WSDOT would position the casting basin facility to minimize habitat effects on that property. Most of the existing wildlife habitat on the Anderson & Middleton property is outside the casting basin facility boundary and would not be eliminated by construction of the facility.

In contrast, the Aberdeen Log Yard site—at 51 acres—meets the minimum size requirements of a casting basin facility. As a result, avoiding effects on habitats onsite would not be possible, and all existing terrestrial habitat, as well as freshwater wetland habitat at the Aberdeen Log Yard site, would be eliminated with the project construction. Additionally, it is important to note that Exhibit 3.1-10 describes wildlife habitat by vegetative cover type; this is not based on parcel size or acreage and does differ from parcel size and acreage. This analysis is intended to fully disclose adverse effects on habitat that could result from construction activities at either build alternative.

What indirect effects would the project have on wildlife?

CTC Facility

There is no wildlife habitat at the CTC facility site. Therefore, there would be no direct or indirect project effects on wildlife at the site.

EXHIBIT 3.1-10
Wildlife Habitat Summary of Direct Effects

	Aberdeen Log Yard Alternative (Preferred Alternative)			Anderson & Middleton Alternative		
Affected Resource	**Existing Land Cover (acres)**	**Area Affected by Construction (acres)**	**Habitat Area Avoided by Construction (acres)**	**Existing Land Cover (acres)**	**Area Affected by Construction (acres)**	**Habitat Area Avoided by Construction (acres)**
Industrial	35.4	35.4	0	32	32	0
Upland forest	0	0	0	5.4	Avoided	5.4
Grassland	3.4	3.4	0	11	5	6
Herb and/or shrub	5.3	5.3	0	19	Avoided	19
Riparian forest	4.7	4.7	0	1.4	Avoided	1.4
Estimated freshwater wetland area	3.1	3.1	0	8.0	4.8	3.2
Estimated estuarine habitat types	1.8	0.6	1.2	5.7	1.0	4.7
Total (acres)	**53.7**	**52.5**	**1.2**	**82.5**	**42.8**	**39.7**

Note: The acreage estimates presented in this table are based on vegetative cover inferred from aerial photographs; therefore, these numbers differ from those in the Wetlands discussion earlier in this section, which are based on the field wetland delineations. In addition, the estimates also differ from parcel acreage. For a full discussion and detailed mapping of how habitat types were analyzed see the Ecosystems Discipline Report, Appendix C. Launch channel impacts are discussed within the Fish and Aquatic Resources discussion of this section.

This means there would be no cumulative effects on wildlife from this project or other foreseeable future actions.WSDOT does not anticipate that towing or mooring the pontoons in Puget Sound would have indirect effects on wildlife. The pontoons would be moored at existing moorage berths, which are characterized by their industrial nature and not typically used by a wide variety of wildlife species.

Grays Harbor Build Alternatives

Casting basin construction at either Grays Harbor build alternative site would displace wildlife to nearby areas of suitable habitat, which could lead to increased competition for food, cover, and other resources within those areas. This potential indirect effect would likely be negligible because there is available habitat in the project vicinity that is of equal or greater quality than the build alternative sites. All other project effects on wildlife are considered by WSDOT to be direct effects.

Grass Creek

Constructing the Grass Creek mitigation site would result in temporary disturbance to the wildlife habitat on the site; however, these effects

would be mitigated by the resulting improvements in ecological quality at the site when construction is complete and the site stabilizes.

How would wildlife be affected if the project were not built?

Under the No Build Alternative, there would be no construction, operational, or long-term effects on wildlife, because no action would be taken. Wildlife would continue to use the Grays Harbor build alternative sites, which have been developed in the past and, thus, provide limited wildlife habitat function now.

What would the cumulative effect on wildlife likely be?

CTC Facility

There would be no direct or indirect project effects on wildlife at the CTC site, so there would be no contribution to cumulative effects on wildlife associated with pontoon-building or towing activities at this site.

Grays Harbor Build Alternatives

To evaluate possible cumulative effects on wildlife of the proposed SR 520 Pontoon Construction Project in combination with other projects, WSDOT considered past actions that have led to the existing conditions and reasonably foreseeable actions in the project vicinity. Two anticipated actions, the Westport shipyard expansion and the Paneltech International expansion, would involve industrial redevelopment within the existing industrial area; these projects would be similar to the proposed SR 520 Pontoon Construction Project with respect to wildlife effects. WSDOT also considered the development of new retail and commercial uses, as well as marine industrial redevelopment at three locations within Grays Harbor in proximity to the Aberdeen Log Yard Alternative; these actions would redevelop land within existing industrial or commercial zones that are already developed and where wildlife likely occurs only sporadically. Because wildlife habitat within established industrial or commercial areas is of such poor quality, redevelopment of land within these areas would have a lesser effect on wildlife habitat than other possible future projects in non-industrially or commercially zoned areas would. Therefore, from a habitat perspective, redevelopment of these industrially zoned lands presents the least damaging alternative to wildlife habitat.

WSDOT analyzed the potential effects of these reasonably foreseeable projects to help assess the future for wildlife in the area—with and

without the proposed project. WSDOT found that the likely future projects would affect wildlife and their habitat. However, the incremental contribution of the proposed SR 520 Pontoon Construction Project to wildlife would be too small to measure and would not adversely affect the Grays Harbor area's carrying capacity for wildlife habitat.

WSDOT does not anticipate that project effects at either build alternative site would contribute to cumulative effects on wildlife in such a way that would have substantial adverse effects on the Grays Harbor area's carrying capacity for wildlife habitat. There is comparable and higher-quality habitat in the vicinity of either site that could accommodate shifts in wildlife use.