Section 3.4

Plants & Animals

The study area is highly urbanized, but still provides habitat for numerous plant and animal species. Many of these are nonnative introduced species, and most of them are well-adapted to the urban environment and high levels of human disturbance.

Thresholds of significance used for this impact analysis include:

- The potential to reduce or damage rare, uncommon, unique, or exceptional benthic, marine, wetland, riparian, or fish and wildlife habitat.
- The potential to harass, harm, wound or kill any species listed as federally threatened or endangered.
- The potential to adversely affect critical habitat for any federally threatened or endangered species.
- The potential to block migration corridors for special status species.
- Terrestrial noise levels generated exceed any established injury thresholds for any special-status species.

3.4.1 Affected Environment

Study Area

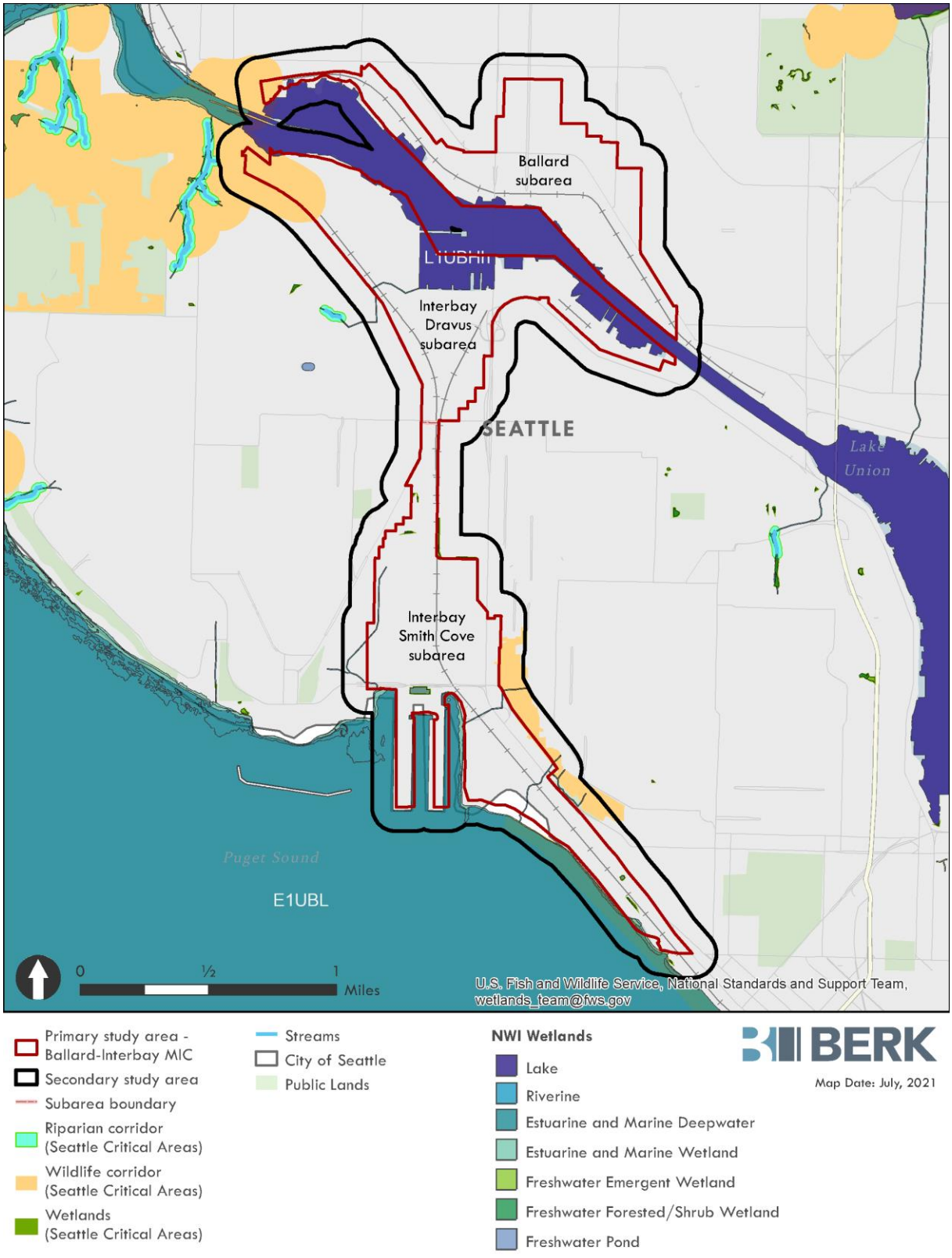
The study area consists of primary and secondary study areas. The primary study area encompasses all industrial land in the City and includes the Ballard Interbay North Manufacturing Industrial Center (BINMIC; **Exhibit 3.4-1**) and the Greater Duwamish Manufacturing and Industrial Center (Greater Duwamish MIC; **Exhibit 3.4-2**). The primary study area is divided into five subareas as follows:

- Ballard
- Interbay Dravus
- Interbay Smith Cove
- SODO/Stadium
- Georgetown/South Park

The primary study area also includes other industrial zones lands within the city.

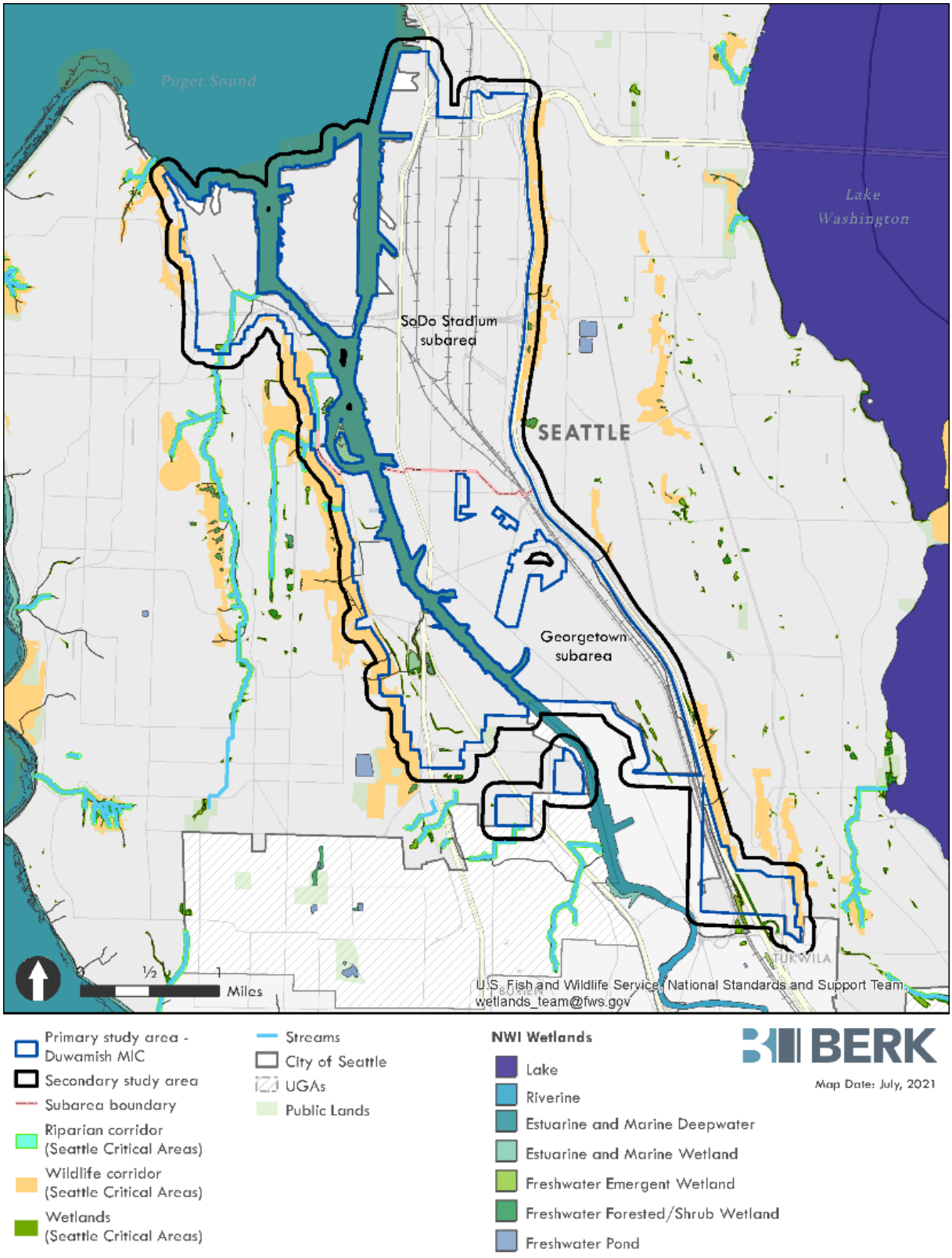
The secondary study area is defined as the area 500 feet from the primary study area, including any waterward areas because development of the Seattle Industrial and Maritime Lands could affect species in the nearshore (**Exhibit 3.4-1** and **Exhibit 3.4-2**). Water quality affecting plants and animals is discussed below as well as in **Section 3.3 Water Resources**.

Exhibit 3.4-1 BINMIC Study Area and Critical Areas, 2021



Source: Herrera, 2021.

Exhibit 3.4-2 Greater Duwamish MIC Study Area and Critical Areas, 2021



Source: Herrera, 2021.

Data & Methods

To characterize plants and animals for each alternative, the project team reviewed GIS data for the primary and secondary study areas identified for each alternative. Data sources included aerial imagery, national wetlands inventory, the City's GIS data for environmentally critical areas (wetlands, streams, wildlife habitats and riparian corridors) and the Washington Department of Fish and Wildlife's Priority Habitats and Species (PHS) information, as well as existing reports.

This review is a general summary for the purposes of identifying plants and animals that could be affected by implementation of the program. As with most construction projects conducted in the city, projects proposed under the program would require site-specific analysis to determine the presence of sensitive or protected plants, habitats, fish, or wildlife.

Current Policy & Regulatory Frameworks

Several federal, state, and local regulations and permits relate to the protection of plants and animals within the study areas (**Exhibit 3.4-3**). Projects that involve federal funding, land, or permits from a federal agency trigger the need to comply with federal regulations.

Exhibit 3.4-3 Federal, State, and Local Regulations and Permits Related to the Protection of Plants and Animals

Statute	Lead Agency	Regulated Activity
Federal		
Endangered Species Act	National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS)	Protects species identified as endangered or threatened along with critical habitat required for the conservation of those species. NMFS has authority over anadromous fishes, marine mammals, marine reptiles, and other fish species, while the USFWS has authority over terrestrial wildlife and resident fish species that inhabit inland waters. Requires that federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species or result in the destruction or adverse modification of critical habitat. To comply with the Act, project proponents are required to consult with the federal agencies regarding the effect of their projects on listed species.
Magnuson-Stevens Fishery Conservation Act	NMFS	Requires federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat for federally managed fish species within a 200-mile zone offshore of the United States.
Marine Mammal Protection Act	NMFS	Prohibits injury or harm to marine mammals in U.S. waters. NMFS has authority over whales, dolphins, porpoises, seals, and sea lions, while the USFWS has authority over otters. The USDA is responsible for managing marine mammals in captivity.
Migratory Bird Treaty Act	USFWS	Protects many of the most common birds in the study area as well as birds that are listed as threatened or endangered. USFWS has authority to regulate most aspects of the taking, possession, transportation, sale, purchase, barter, exportation, and importation of migratory birds. As of

Statute	Lead Agency	Regulated Activity
		March 2010, there are 1,007 species protected under the Act (Federal Register Vol. 75, No. 39). Species whose occurrences in the United States are strictly the result of intentional human introduction are not protected under the Act. Of particular concern are activities that affect birds nesting on bridges, buildings, signs, illumination poles, and other structures in areas planned for construction.
Bald and Golden Eagle Protection Act	USFWS	Specifically protects bald and golden eagles and makes it unlawful to take, import, export, sell, purchase, or barter any bald or golden eagles, their parts, products, nests, or eggs. "Take" includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing eagles. To avoid potential disturbance to bald eagles, the National Bald Eagle Management Guidelines (USFWS, 2007) provide recommendations that will likely avoid take for a list of activities.
Fish and Wildlife Conservation Act	USFWS	This Act authorizes financial and technical assistance for states to develop, revise, and implement conservation plans and programs for nongame fish and wildlife.
Section 404 of the Clean Water Act	U.S. Army Corps of Engineers	Regulates the placement of dredged or fill material into waters of the United States, including special aquatic sites such as wetlands.
State of Washington		
State Hydraulic Code (Chapter 220-110 WAC)	Washington Department of Fish and Wildlife (WDFW)	Protects fish and their habitat through regulation of activities in streams and lakes. WDFW administers state rules through its Hydraulic Project Approval (HPA) program. An HPA must be obtained from WDFW before work is conducted that uses, obstructs, diverts, or changes the natural flow or bed of state waters. The conditions of an HPA can be designed to protect fish, shellfish, and their habitat.
Priority Habitats and Species Program	WDFW	Provides information on documented locations of fish and aquatic resources, terrestrial plants and animals, and habitats that are listed or defined as priority. Priority species are those species that are: state endangered, threatened, sensitive, or candidate species; animal aggregations considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable (WDFW, 2008). Priority habitats are habitat types or elements of habitat with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type (e.g., shrub-steppe) or dominant plant species, a described successional stage (e.g., old-growth forest), or a specific habitat feature (e.g., cliffs).
Natural Heritage Program	Washington Department of Natural Resources (WDNR)	Provides information for listed plant species or those that are defined as rare. Also maintains information on rare ecological communities and priority species.
Clean Water Act Section 401	Washington State Department of Ecology (Ecology)	Requires certification for any projects that may result in a discharge into waters of the United States to ensure that the discharge complies with applicable state water quality requirements.

Statute	Lead Agency	Regulated Activity
Washington State Water Pollution Control Act (RCW 90.48)	Ecology	Regulates placement of dredge or fill material within non-federally regulated wetlands or waters of the State
Furbearer Regulations	WDFW	Furbearers may not be taken from the wild and held alive for sale or personal use without a permit pursuant to WAC 232 12 064.
Water Quality Standards for Surface Waters of the State of Washington	Ecology	Aquatic life uses are designated based on the presence or protection of species. Ecology provides general water quality standards based on aquatic life use categories.
Washington Regulations for Fish and Wildlife	WDFW	Washington State has its own criteria for listing species as endangered, threatened, sensitive, and candidate. Washington has developed rules to provide for additional protection of some species and their habitat. The state has defined suitable habitat, dispersal habitat, habitat buffers, critical habitat, and critical nesting season and nesting areas.
City of Seattle		
Environmentally Critical Areas Ordinance (Seattle Municipal Code [SMC] 25.09)	City of Seattle Department of Planning and Development (DPD)	Protects and regulates activities on or adjacent to critical areas in the City. Critical areas include geologic hazard areas, flood-prone areas, wetlands, fish and wildlife habitat conservation areas (FWHCAs), and abandoned landfills. FWHCAs are wildlife habitats that are mapped or designated by WDFW, corridors connecting priority habitats, or areas that support species of local importance. FWHCAs and wetlands are typically protected by a buffer in which development, including clearing and other land disturbing activities, is prohibited or restricted. Riparian corridors, a type of FWHCA, include all areas within 100 feet of the ordinary high water mark of a watercourse. Parcels containing riparian corridors and shoreline habitat are also subject to the general development standards in SMC 25.09.060 and specific development regulations in SMC 25.09.200, as well as regulations regarding tree and vegetation alteration and pesticide use.
Shoreline Master Program (SMC 23.60)	DPD	Regulates water bodies above a threshold size as well as lands within 200 feet of the ordinary high water mark of those water bodies. Regulations include restrictions on development in the shoreline zone, requirements for maintaining native vegetation, and development standards.
Tree Protection Ordinance (SMC 25.11) and specific environmental policies related to trees (SMC 25.05.675)	DPD	Trees in Seattle are specifically valued and legally protected under various regulations in addition to the environmentally critical areas code. "Exceptional trees" are specifically protected and defined as a tree or group of trees that constitutes an important community resource because of its unique historical, ecological, or aesthetic value. Prior to construction at any site, a survey for exceptional trees would need to be conducted by a licensed arborist as required under SMC 25.11.
SEPA Plants and Animals Policy (SMC 25.05.675.N)	DPD	City policy to minimize or prevent loss of wildlife habitat. Allows SDCI ~~DPD~~ to grant, condition or deny construction and use permit applications for public or private proposal that are subject to environmental review.

Source: Herrera, 2021.

Full Study Area

Current conditions for plants and animals are defined as the conditions that exist within the study area in 2021 when the desktop analysis was conducted. Mapping for critical areas within the study areas are shown in **Exhibit 3.4-1** and **Exhibit 3.4-2**.

Plants

The heavily urbanized habitats in the study areas include streets, parking lots, commercial and industrial properties, high-density residential buildings, and railroad rights of way. Over the last 150 years, urban development has eliminated nearly all the native vegetation. Small pockets of native vegetation remain within protected park areas, protected shorelines, and undeveloped steep slopes. Additional vegetation exists as street trees and related streetscape vegetation in the right of way, and yards associated with private homes. Streetscape vegetation has been installed and is maintained by the City's Urban Forestry section or by private development projects under permit from SDOT.

Non-native invasive species, such as English ivy (*Hedera helix*) and Himalayan blackberry (*Rubus armeniacus*), are common in unmaintained portions of the study areas. These invasive species are well adapted to urban environments and out-compete native plant species. Non-vascular plants, such as mosses and lichens, grow on a variety of hard surfaces such as concrete, treated wood, and occasionally metal in the study areas.

The study areas for the BINMIC can be broken down into the following landscapes:

- approximately 20% vegetation
- approximately 62% hardscape
- approximately 18% water

The study areas for the Greater Duwamish MIC can be broken down into the following landscapes:

- approximately 22% vegetation
- approximately 68% hardscape
- approximately 10% water

Shorelines and nearshore areas within the study area include streams and riparian corridors, lakes, estuaries, and marine waters, as described below. Upland habitat consists of forests, natural areas, and landscaped areas.

Riparian Corridors

Riparian corridors are vegetated corridors present along streams. Within the study areas, riparian corridors are typically vegetated with deciduous trees and shrubs with a few conifer trees. Native plants common to riparian corridors in the study areas include red alder (*Alnus rubra*), big-leaf maple (*Acer macrophyllum*), Indian plum (*Oemleria cerasiformis*), vine maple (*Acer*

circinatum), willow (*Salix* spp.) and horsetail (*Equisetum* spp.). Common aquatic plants include rushes (family Juncaceae), sedges (family Cyperaceae), common cattail (*Typha latifolia*), duckweed (*Lemna* spp.), water lily, and pondweed. Nonnative invasive aquatic plants such as Eurasian watermilfoil (*Myriophyllum spicatum*) are present in some areas.

Some riparian corridors in the City are wide and densely vegetated, but most are narrow and constrained by urban development. Riparian areas provide important wildlife habitat including forage, cover, and complex habitat structure. This habitat supports a wide variety of terrestrial species such as songbirds, woodpeckers, and raptors. Riparian corridors also benefit aquatic habitats by providing shade, large wood, and organic material to streams. Streams in the study area are fed by surface runoff, groundwater, and drainage pipes that convey stormwater from impervious surfaces (Seattle 2010).

Riparian corridors are identified by the City in both the BINMIC and the Greater Duwamish MIC. Corridors within the BINMIC are connected streams that discharge to the Lake Washington Ship Canal and those in the Greater Duwamish MIC are connected to streams that discharge into the Duwamish Waterway.

Freshwater Wetlands

Freshwater wetlands in Seattle are associated with lake edges, streams and their riparian corridors, and scattered low-lying areas. Emergent, scrub-shrub, and forested wetlands are present. Plant species common to emergent wetlands include reed canarygrass (*Phalaris arundinacea*; nonnative), common cattail, and soft rush (*Juncus effusus*). Scrub-shrub and forested wetlands support many of the same plant species as riparian corridors, but also include red-osier dogwood (*Cornus sericea*), willow, and other water-tolerant species.

Freshwater wetlands are identified in both the BINMIC and the Greater Duwamish MIC study areas.

Lakes

The BINMIC study areas contain portions of Lake Union and the Ship Canal. These are open freshwater environments that have aquatic vegetation associated with them such as pondweeds (*Potamogeton* spp.) and hornwort (*Ceratophyllum demersum*). Eurasian watermilfoil and Brazilian elodea (*Egeria densa*) are invasive aquatic plants also well established in this area. The Ship Canal connects the Puget Sound to Lake Union and provides a corridor for aquatic species to travel between these two environments. Lake Union and the Ship Canal are on the Washington Department of Ecology (Ecology) 303(d) list for bacteria, temperature, and pesticides (Ecology 2021).

Estuaries

Estuaries are semi-enclosed bodies of water where freshwater and marine water mix (Hobbie 2000). These ecosystems are shaped by tidal fluctuations and freshwater flows and are among

the most highly productive and complex ecosystems in the state where quantities of sediments, nutrients and organic matter are exchanged among terrestrial, freshwater, and marine communities. In Puget Sound, salinity fluctuates with seasons and tides, making it difficult to differentiate between marine habitat and estuarine habitat. Marine nearshore areas within the study area can all generally be characterized as estuarine habitat and include Elliott bay and the Duwamish Waterway (Encyclopedia of Puget Sound 2020).

Shorelines in Elliott Bay and the Duwamish Waterway have been extensively modified by the placement of seawalls, bulkheads, and levees (Seattle 2015). Both the bay and the waterway are on the Washington Department of Ecology 303(d) list for water quality and sediment due to elevated contaminant concentrations (Ecology 2021). Estuarine wetlands in Seattle are associated with Puget Sound marine nearshore areas where enough light penetrates the water to support persistent aquatic vegetation. Estuarine wetlands are identified around Port of Seattle Terminal 91 and Smith Cove within the BINMIC study areas and in restored areas of the lower Duwamish Waterway within the Greater Duwamish MIC study areas. The Washington Department of Natural Resources identifies the presence of eelgrass (*Zostera marina*) in or around Smith Cover and the Duwamish Waterway (DNR 2021). Eelgrass provides important habitat for numerous Puget Sound species.

Forests

Forested communities are present in scattered patches throughout the city. Forests can be dominated by conifers (such as Douglas fir [*Pseudotsuga menziesii*]) or deciduous trees (such as big-leaf maple) or support a mixture of conifer and deciduous species. City of Seattle has mapped tree canopy coverage throughout the City. Forested areas are typically associated with steep slopes, top of bluffs, greenbelts, parks, and other pockets of undeveloped land. Tree canopy mapped by the City of Seattle also includes street trees. Plant species common to forested habitats in Seattle include Douglas fir, western red cedar (*Thuja plicata*), vine maple, and sword fern (*Polystichum munitum*). Forested habitats are important for woodpeckers, raptors, songbirds, crows, and jays. These forested areas are generally identified by City of Seattle critical area mapping as riparian corridors or wildlife habitat areas.

The patches of forest occur primarily within restored areas along the Duwamish Waterway, along the western edge of the Interbay neighborhood, and along W. Commodore Way leading to Commodore Park and Kiwanis Memorial Preserve Park.

Natural Areas

Natural areas support intact or natural vegetation (both native and nonnative) that is not formally landscaped. Parks and other public lands in the City support natural areas. Natural areas can contain mapped and unmapped riparian corridors and wetlands as well as forested habitats, but they can also contain grass or shrub areas that are not maintained or mowed.

Landscaped Areas

Landscaped areas provide some habitat for wildlife despite their level of development and human presence. Landscaped gardens, golf courses, and recreational parks provide food and water sources, shelter, and other habitat elements important for terrestrial wildlife. Species that use landscaped areas are usually those that can tolerate some level of ongoing human disturbance.

Animals

The study area contains a variety of fish and wildlife habitats and species. Terrestrial animals in the study areas are generally limited to those well adapted to living in a highly altered urban landscape. Examples include birds and mammals that tolerate or benefit from human disturbance, urban habitat features, and trash, such as various gulls (Family Laridae), crows (*Corvus brachyrhynchos*), coyotes (*Canis latrans*) racoons (*Procyon lotor*), opossums (*Didelphis virginiana*). Both marine and freshwater environments are present in the study areas, resulting in substantial diversity for aquatic species.

Special status species are identified in **Exhibit 3.4-4** with PHS mapping shown in **Exhibit 3.4-5** and **Exhibit 3.4-6**. Several of these species are listed as endangered or threatened under the Endangered Species Act. Lake Union, the Ship Canal, and nearshore areas of Elliott Bay are designated critical habitat for bull trout (*Salvelinus confluentus*) and Chinook salmon (*Oncorhynchus tshawytscha*), and the Duwamish Waterway provides critical habitat for bull trout, Chinook, and steelhead (*O. mykiss*). Elliott Bay is also designated critical habitat for yelloweye rockfish (*Sebastes paucispinis*) and bocaccio (*Sebastes paucispinis*). Deeper waters (great than 20 feet deep) of Elliott Bay are designated critical habitat for the Southern Resident killer whale (*Orcinus orca*) (NMFS 2021), but the species itself is extremely unlikely to occur in the study area.

The Ship Canal, Lake Union, and Elliott Bay are Essential Fish Habitat (EFH) for groundfish, Chinook, and coho salmon (*O. kisutch*). Elliott Bay and the Duwamish Waterway are EFH for Chinook, coho, pink salmon (*O. gorbuscha*), and coastal pelagic species.

Bald eagles (*Haliaeetus leucocephalus*), which are protected under the Bald and Golden Eagle Protection Act, forage in Lake Union, the Ship Canal, Elliott Bay, and the Duwamish River. Almost all other bird species are protected under the Migratory Bird Treaty Act. Although PHS data list historical occurrences of western pond turtle (*Actinemys marmorata*) in the study area, this species is extremely rare and highly unlikely to occur in the study area.

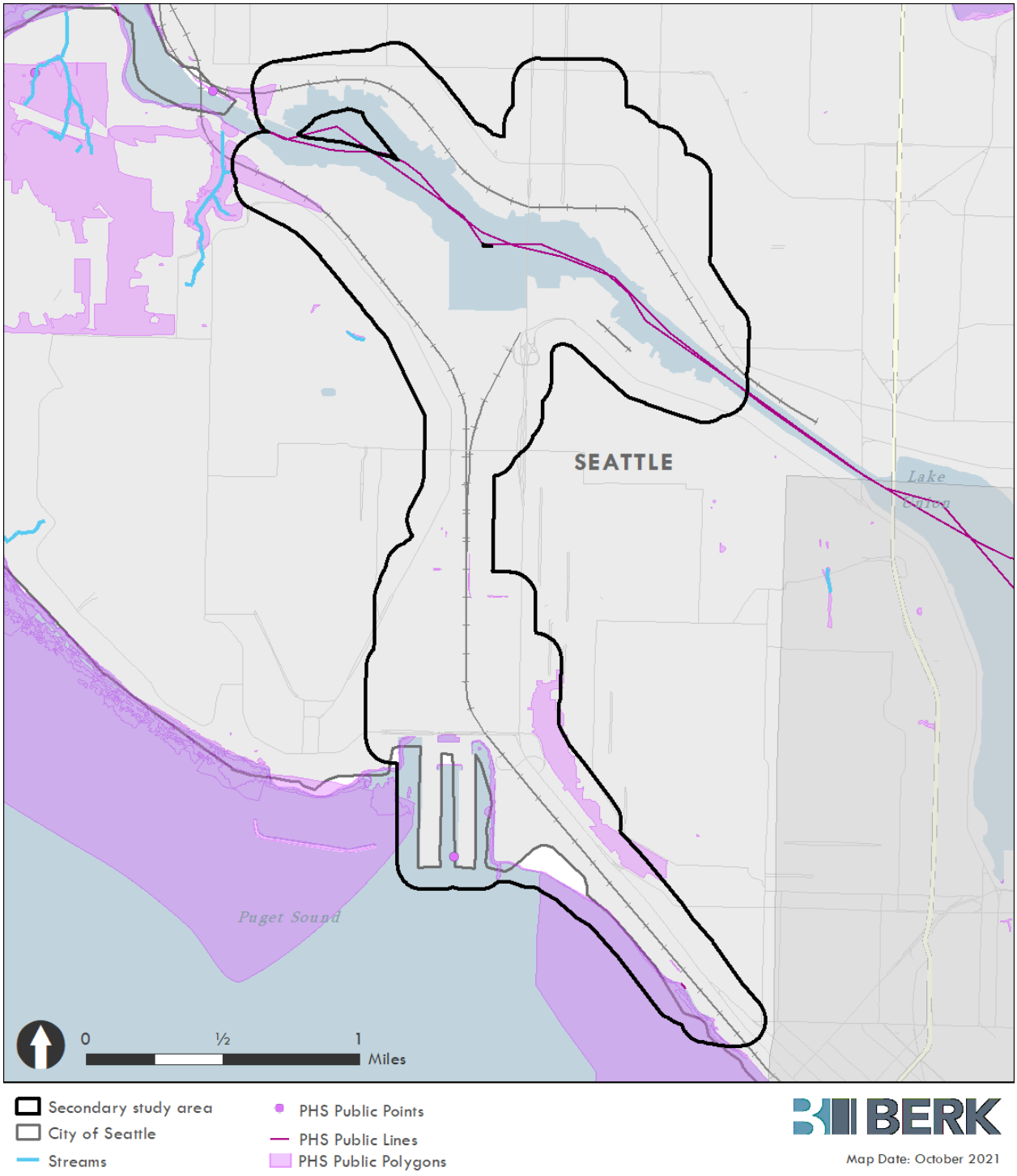
Exhibit 3.4-4 Special Status Species and Habitats Occurring in the Study Areas

Common Name	Scientific Name	Federal Status/Protection	State Status	Use of Study Area	Occurrence in Study Area
Dungeness crab	*Cancer magister*	N/A	N/A	Presence	BINMIC
Pacific Herring	*Clupea pallasi*	N/A	Candidate	Breeding Area	BINMIC
Dolly Varden/Bull Trout	*Salvelinus malma/S. confluentus*	Threatened	Candidate	Foraging/Migration	BINMIC Greater Duwamish MIC
Bull trout critical habitat	N/A	N/A	N/A	N/A	BINMIC Greater Duwamish MIC
Chinook	*Oncorhynchus tshawytscha*	Threatened	Candidate	Foraging/Migration	BINMIC Greater Duwamish MIC
Chinook critical habitat	N/A	Designated	N/A	N/A	BINMIC Greater Duwamish MIC
Chum	*Oncorhynchus keta*	Not Warranted	N/A	Foraging/Migration	Greater Duwamish MIC
Resident Coastal Cutthroat	*Oncorhynchus clarki*	N/A	N/A	Foraging/Migration	BINMIC Greater Duwamish MIC
Coho	*Oncorhynchus kisutch*	Candidate	N/A	Foraging/Migration	BINMIC Greater Duwamish MIC
Pink Salmon	*Oncorhynchus gorbuscha*	N/A	N/A	Foraging/Migration	Greater Duwamish MIC
Steelhead	*Oncorhynchus mykiss*	Threatened	Candidate	Foraging/Migration	BINMIC Greater Duwamish MIC
Steelhead critical habitat	N/A	Designated	N/A	N/A	BINMIC Greater Duwamish MIC
Sockeye	*Oncorhynchus nerka*	Not Warranted	Candidate	Foraging /Migration	BINMIC Greater Duwamish MIC
Pacific Sand Lance	*Ammodytes hexapterus*	N/A	N/A	Breeding Area	BINMIC
Yelloweye rockfish	*Sebastes ruberrimus*	Threatened	N/A	Presence	BINMIC Greater Duwamish MIC

Common Name	Scientific Name	Federal Status/Protection	State Status	Use of Study Area	Occurrence in Study Area
Yelloweye rockfish critical habitat	N/A	Designated	N/A	N/A	BINMIC Greater Duwamish MIC
Bocaccio	*Sebastes paucispinis*	Endangered	N/A	Presence	BINMIC Greater Duwamish MIC
Bocaccio critical habitat	N/A	Designated	N/A	N/A	BINMIC Greater Duwamish MIC
Purple martin	*Progne subis*	MBTA[1]	N/A	Foraging/Nesting	BINMIC Greater Duwamish MIC
Great blue heron	*Ardea herodias*	MBTA	N/A	Foraging/Nesting	BINMIC Greater Duwamish MIC
Bald eagle	*Haliaeetus leucocephalus*	BGEPA[2]	N/A	Foraging	BINMIC Greater Duwamish MIC
Other bird species	N/A	MBTA	N/A	Foraging, nesting	BINMIC Greater Duwamish MIC
Southern resident killer whale critical habitat	N/A	Designated	N/A	N/A	BINMIC Greater Duwamish MIC

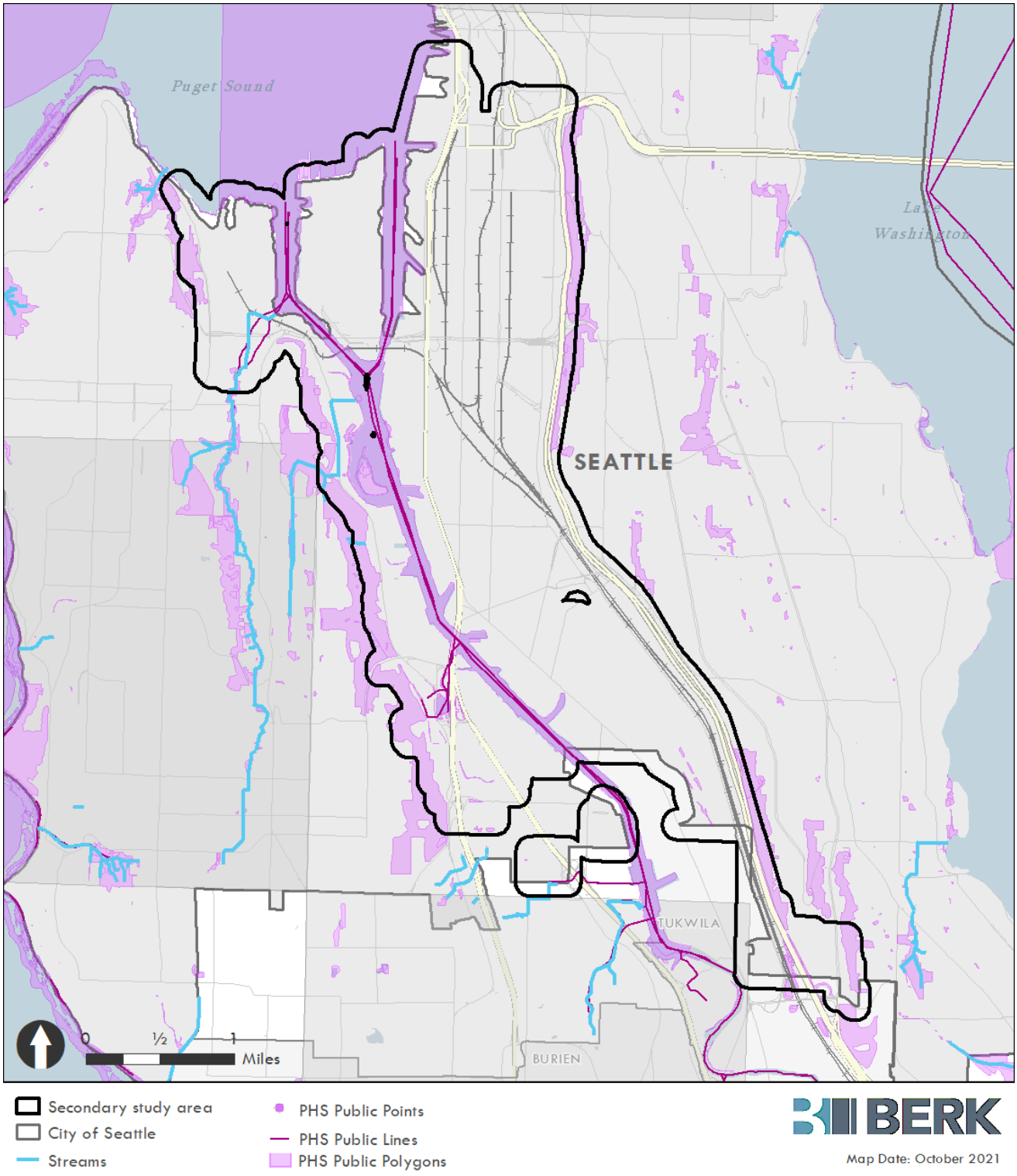
[1] MBTA = Migratory Bird Treaty Act
[2] BGEPA = Bald and Golden Eagle Protection Act
Source: Herrera, 2021.

Exhibit 3.4-5 BINMIC Study Areas PHS Mapping, 2021



Source: Herrera, 2021.

Exhibit 3.4-6 Greater Duwamish MIC Study Areas PHS Mapping, 2021

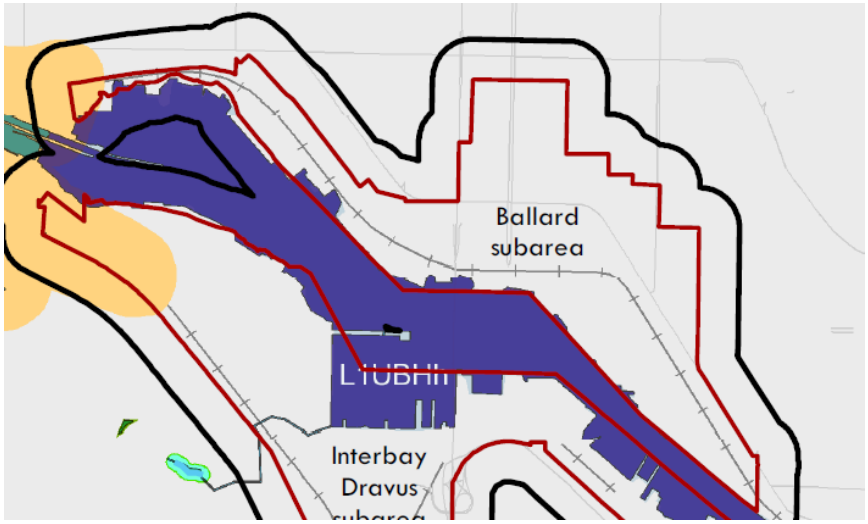


Source: Herrera, 2021.

Ballard

Critical areas identified within the Ballard Subarea are mapped in **Exhibit 3.4-7**. For further descriptions of plants in these areas please see the **Plants** section above. Areas that provide animal habitat are discussed in the **Animals** section above.

Exhibit 3.4-7 Critical Areas—Ballard Subarea, 2021



Highlights

Wildlife Corridors

Lake

Estuarine Deepwater

Primary study area - Duwamish MIC
Secondary study area
Subarea boundary
Riparian corridor (Seattle Critical Areas)
Wildlife corridor (Seattle Critical Areas)
Wetlands (Seattle Critical Areas)

Streams
City of Seattle
UGAs
Public Lands

NWI Wetlands
Lake
Riverine
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond

BERK

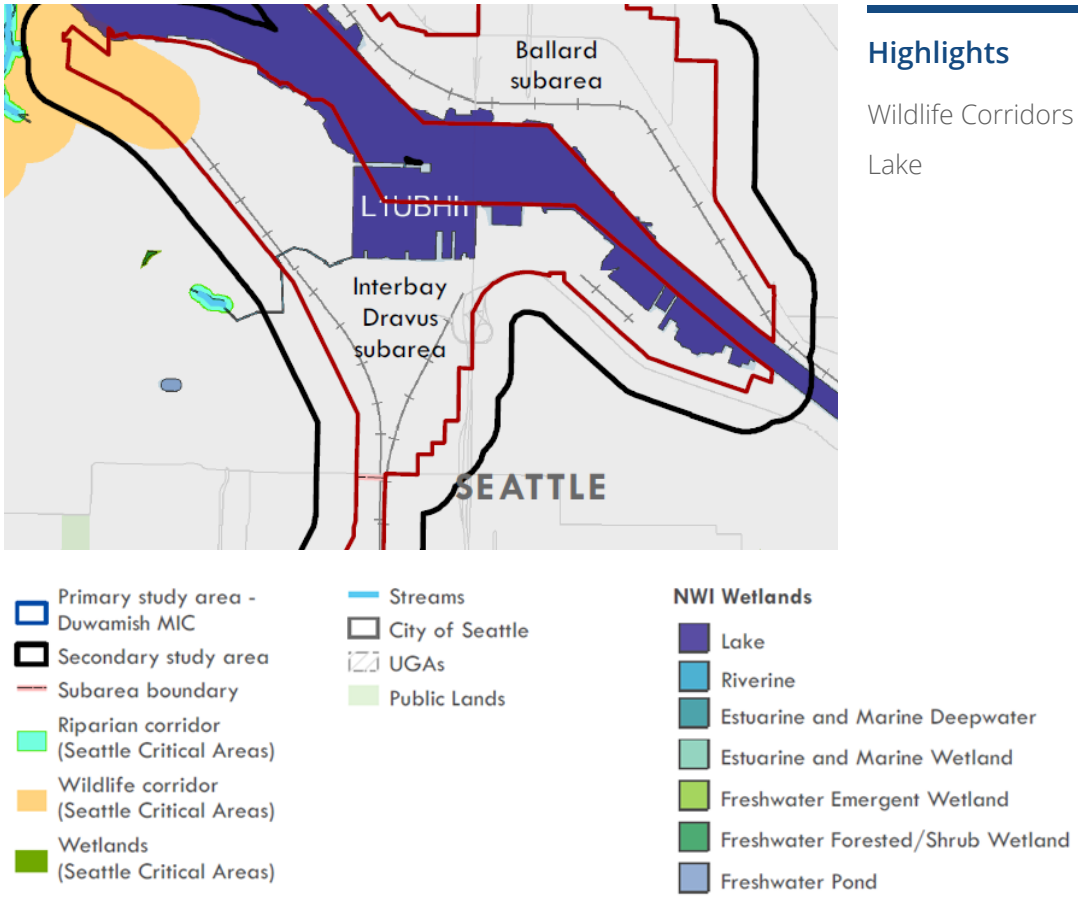
Map Date: July, 2021

Source: Herrera, 2021.

Interbay Dravus

Critical areas identified within the Interbay Dravus Subarea are mapped in **Exhibit 3.4-8**. For further descriptions of plants in these areas please see the **Plants** section above. Areas that support animals are discussed in the **Animals** section above.

Exhibit 3.4-8 Critical Areas—Interbay Dravus Subarea, 2021



Highlights

Wildlife Corridors

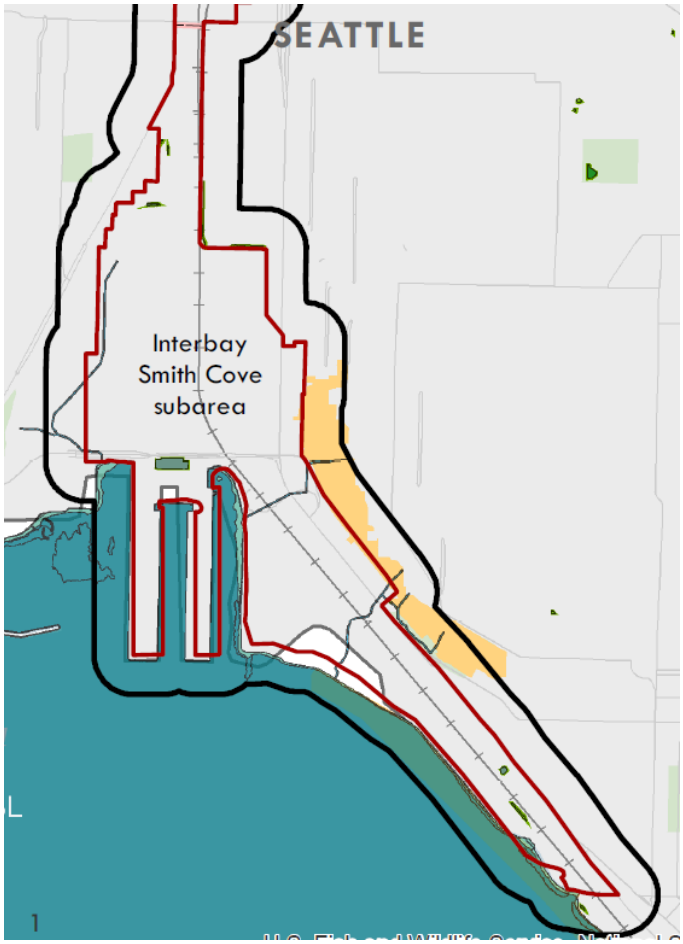
Lake

Source: Herrera, 2021.

Interbay Smith Cove

Critical areas identified within the Interbay Smith Cove Subarea are mapped in **Exhibit 3.4-9**. For further descriptions of plants in these areas please see the **Plants** section above. The presence of animals and animal habitats in this subarea is discussed in the **Animals** section above.

Exhibit 3.4-9 Critical Areas—Interbay Smith Cove Subarea, 2021



Highlights

Wildlife Corridors

Freshwater Wetlands

Estuarine Wetlands

Estuarine Deepwater

Primary study area - Duwamish MIC
Secondary study area
Subarea boundary
Riparian corridor (Seattle Critical Areas)
Wildlife corridor (Seattle Critical Areas)
Wetlands (Seattle Critical Areas)

Streams
City of Seattle
UGAs
Public Lands

NWI Wetlands

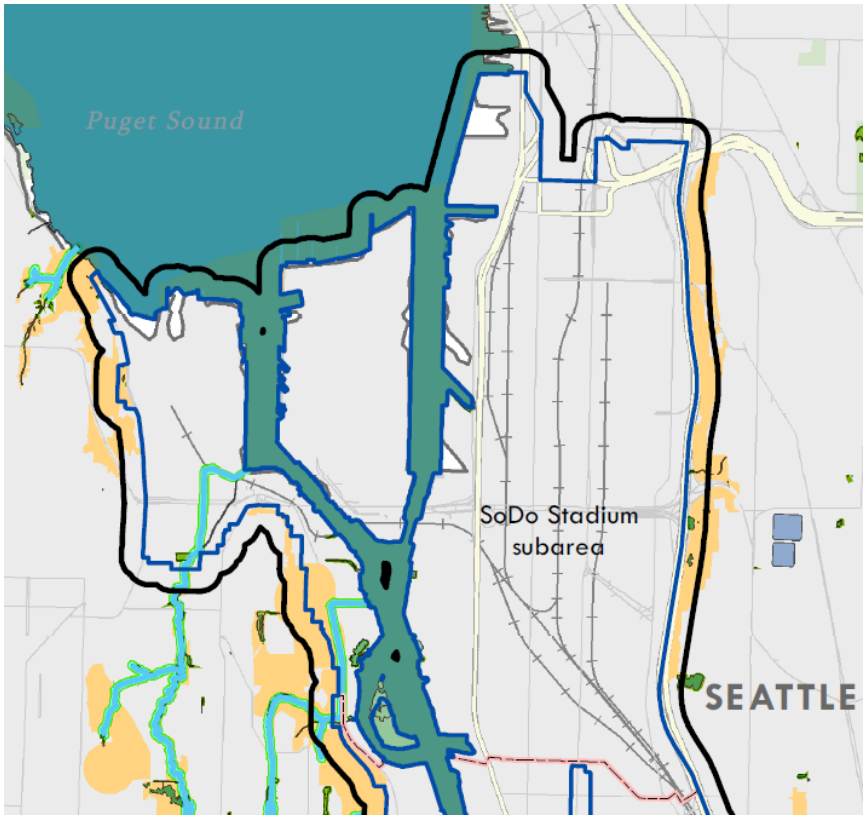
Lake
Riverine
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond

Source: Herrera, 2021.

SODO/Stadium

Critical areas identified within the SODO/Stadium Subarea are mapped in **Exhibit 3.4-10**. For further descriptions of plants in these areas please see the **Plants** section above. Areas that provide animal habitat are discussed in the **Animals** section above.

Exhibit 3.4-10 Critical Areas—SODO/Stadium Subarea, 2021



Highlights

Wildlife Corridors

Freshwater Wetlands

Estuarine Wetlands

Estuarine Deepwater

Riparian Corridors

Streams

Primary study area - Duwamish MIC
Secondary study area
Subarea boundary
Riparian corridor (Seattle Critical Areas)
Wildlife corridor (Seattle Critical Areas)
Wetlands (Seattle Critical Areas)

Streams
City of Seattle
UGAs
Public Lands

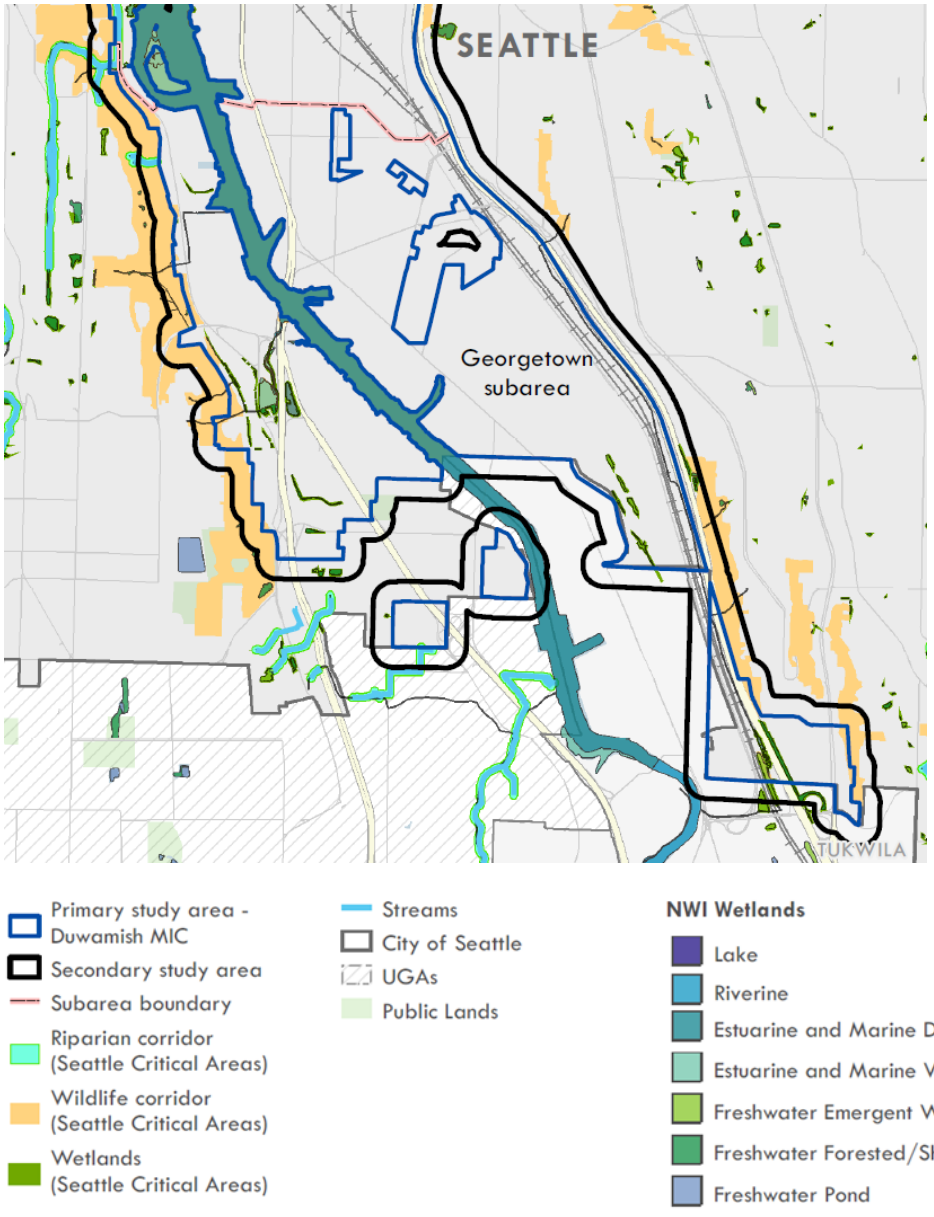
NWI Wetlands
Lake
Riverine
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond

Source: Herrera, 2021.

Georgetown/South Park

Critical areas identified within the Georgetown/South Park Subarea are mapped in **Exhibit 3.4-11**. For further descriptions of plants in these areas please see the **Plants** section above. The presence of animals and animal habitats in this subarea are discussed in the **Animals** section above.

Exhibit 3.4-11 Critical Areas—Georgetown/South Park Subarea, 2021



Highlights

Wildlife corridors

Freshwater wetlands

Estuarine Deepwater

Riparian Corridors

Streams

Source: Herrera, 2021.

3.4.2 Impacts

Impacts Common to All Alternatives

Noise & Disturbance

All alternatives involve construction activities that would generate noise and disturbance that could temporarily displace bird species listed in **Section 3.4.1 Affected Environment** from preferred nesting, foraging, and/or migration sites.

The amount and intensity of construction is expected to be greater under the Action Alternatives, particularly alternatives 3 and 4, which allow for the greatest industry-associated caretakers' quarters and makers' space, as well as remove focused land in the Georgetown subarea that could be developed for housing. In particular there would be an increase housing in the UI zone in the Ballard and SODO/Stadium subareas. The Georgetown/ South Park subarea would be a focus for 20+ acre rezone to Seattle Mixed where alternatives 3 and 4 would allow for greater attached housing.

All studied alternatives add employment space over current conditions with Alternative 1 No Action the least and alternatives 3 and 4 the most. Given the high levels of existing human activity and noise levels in these industrial zones, construction activities would not be likely to increase noise and disturbance to an extent that would adversely affect birds in the study area. These species are already adapted to high levels of human activity and any disturbance would be minor. These species would likely return to normal activity levels shortly following construction.

None of the alternatives affect shoreline land use regulations or propose changes to regulations governing in-water work; accordingly, the studied alternatives would not result in direct noise or disturbance impacts to aquatic habitats or species.

Construction Stormwater Runoff

Stormwater runoff from active construction sites has the potential to adversely affect water quality in receiving water bodies, primarily by increasing sediment and turbidity. Best management practices (BMPs) implemented during construction per City of Seattle regulations would be protective of water quality. Refer to **Section 3.3 Water Resources**, for a more detailed discussion of temporary impacts related to construction.

Lack of Redevelopment

Some existing properties cause detrimental environmental effects due to the presence of contamination, overwater cover, or lack of stormwater treatment, all of which can reduce water quality and negatively affect fish, benthic invertebrates, and other aquatic life. If these

properties are not redeveloped, with associated mitigation of environmental impacts, these consequences would persist into the future and continue to degrade aquatic habitat.

Equity & Environmental Justice Considerations

The Action Alternatives would result in greater tree canopy cover in landscaped areas and green spaces that promote environmental health, provide safe, non-motorized transit options, encourage walkability and access to the outdoors, and improve comfort. This is through street frontage/street tree and green factor requirements in the II and UI zones. Alternatives 3 and 4 and the Preferred Alternative have the greatest share of land in II and UI zones (14% ~~and ,~~ 13%, and 14% respectively), where trees, landscaping, and green spaces would be concentrated. Under Alternative 2, about 10% of land within industrial areas would be zoned as II or UI. The No Action Alternative does not include II or UI zoning and does not have a plan for conversion of currently developed areas to landscaped areas or green spaces. The adaptation of impervious areas to increased tree canopy and green factor can increase shade and modestly improve habitat such as for birds and urban-adapted wildlife as well as for humans.

Focusing such street and landscaping improvements in SODO/Stadium and Georgetown/South Park areas would assist disadvantaged populations as identified in Seattle's Racial and Social Equity Index.

The Action Alternatives also have the potential to improve water quality in the study area. Older development that lacks modern stormwater infrastructure and treatment would be replaced with newer infrastructure that provides water quality treatment, thereby reducing pollutant loading to receiving water bodies. Similarly, flow control would be provided for discharges to flow-sensitive water bodies, reducing adverse effects of high flows. Improvements to water quality and flow control would benefit fish and aquatic invertebrate species, many of which are harvested for human consumption.

Impacts of Alternative 1 No Action

The No Action Alternative involves less redevelopment of previously developed parcels, and areas would not be rezoned for II and UI uses. Less redevelopment would result in fewer opportunities ~~for~~ to implement~~ing~~ stormwater treatment and create~~ing~~ landscaped areas and green spaces that improve water quality. Existing pollutant loading to receiving water bodies would continue at current levels and continue to degrade aquatic habitat. Pollutants in stormwater runoff can cause avoidance of preferred habitat by aquatic species, reduced foraging efficiency of fish, and direct toxicity to fish species and their prey (NMFS 2020).

Except where protected by critical area and shoreline regulations, some minor amounts of habitat (such as landscaped or unpaved areas) may be converted to developed areas, which would decrease habitat available to species found in the study area. Because this alternative maintains existing zoning, there would be less development and therefore less habitat loss compared to other alternatives. Impacts to protected habitats, such as riparian corridors and

wetlands, would be minimized to the extent possible per Seattle Municipal Code. Compensatory mitigation would be provided for permanent unavoidable impacts.

Impacts of Alternative 2

Alternative 2 would apply a mix of II and UI zone concepts in approximately 10% of current MIC areas. These concepts would increase the number of trees and landscaping, and green spaces, which would provide opportunities for stormwater treatment as well as terrestrial wildlife habitat. Stormwater treatment would reduce pollutant loading to receiving water bodies.

This alternative would result in a small increase of approximately 80 residential units, mostly in the SODO/Stadium and Georgetown/South Park subareas. Development on currently undeveloped parcels would increase impervious surfaces and resulting stormwater runoff, which could further degrade water quality. However, conversion of previously developed areas also provides opportunities for stormwater retrofits that would improve water quality.

Depending on where these units are located, and the degree of shoreline and critical area regulations protection, new construction has the potential to reduce wildlife habitat by converting minor amounts of landscaping or other unpaved areas to developed areas. Appropriate siting of new housing, as well as adherence to existing regulations regarding protected habitats, would minimize habitat impacts.

Impacts of Alternative 3

Alternative 3 would apply a mix of II and UI zone concepts in approximately 14% of current MIC areas, the most of any alternative. Residential dwelling would increase within the MIC and within focused areas removed from the MIC by approximately 1,688 net units, primarily within the Ballard, SODO/Stadium, and South Park/Georgetown subareas. As discussed under Alternative 2, II and UI zone concepts promote development of green spaces that provide opportunities for stormwater treatment and wildlife habitat.

Although residential development could degrade wildlife habitat by developing undeveloped properties, and creating new and additional sources of contamination (see **Section 3.3 Water Resources**), redevelopment of previously developed areas could provide opportunities for more advanced stormwater treatment, thereby improving water quality in the study area.

Impacts of Alternative 4

Alternative 4 would apply a mix of II and UI zone concepts in approximately 13% of current MIC areas, only slightly less than Alternative 3, and would result in the creation of green spaces and landscaped areas that provide similar opportunities for stormwater retrofits.

This alternative would increase residential units by approximately 3,273 net units, more than the other alternatives, primarily in the Ballard, SODO/Stadium, and Georgetown/South Park

subareas. Although this increase has the potential to result in more pollutant sources and greater pollutant loading to receiving water bodies, redevelopment of a larger area also provides greater opportunities for stormwater retrofits that could improve water quality within the study area.

Increasing residential units could result in greater conversion of minor amounts of wildlife habitat provided by landscaped and unpaved areas to developed areas. However, existing habitat within the study area is limited, and habitat impacts would be minimal. Mitigation measures proscribed by existing regulations would avoid, minimize, and compensate for impacts to special status habitats (refer to Mitigation Measures below).

Impacts of the Preferred Alternative

The Preferred Alternative applies a mix of II and UI zone concepts in 14% of current MIC areas. Similar to other alternatives, these concepts promote development of green spaces that provide opportunities for stormwater treatment and wildlife habitat. This alternative would result in a slight expansion of limited industry-supportive housing in the UI zone concept, with associated loss of minor amounts of degraded wildlife habitat, as described under other alternatives.

3.4.3 Mitigation Measures

Incorporated Plan Features

Development regulation proposals include some elements of streetscape and "green factor" in the II and UI zones for Action Alternatives.

Regulations & Commitments

The proposed alternatives would incorporate impact avoidance and minimization measures during construction and operation in accordance with the regulations described in this section. Construction impact avoidance and minimization measures would include the management of noise, dust, and runoff caused by construction activities. The proposed alternatives would include stormwater management measures during the operation of all constructed features to treat stormwater in compliance with all applicable regulations.

Existing environmental regulations including the City of Seattle Code, Washington State Law, and Federal Laws, aim to reduce the potential impacts of projects and would apply to all alternatives. These regulations ensure impacts to the environment are avoided, minimized, documented, and mitigated to the greatest extent possible. The procedures associated with these regulations create opportunities for public notice and comment on projects prior to implementation. Environmentally sensitive areas are designated as environmentally critical

areas and are protected from avoidable development impacts. The principal existing regulations that protect ecosystem resources include the following:

- **Federal Clean Water Act.** Federal review by the United States Army Corps of Engineers (USACE) is required for to any project affecting waters of the United States (WOTUS). The USACE requires avoidance, minimization, and mitigation for impacts to WOTUS, endangered species, and cultural resources.
- **State of Washington Laws.** State review by the Washington Department of Ecology and/or the Washington Department of Fish and Wildlife is required for any project which affects waters of the state. The state requires projects demonstrate avoidance, minimization, and mitigation measures for any impacts to waters of the state and/or fish and wildlife.
- **City of Seattle Municipal Code (SMC) Chapter 25.09 Regulations for Environmentally Critical Areas.** Environmentally critical areas are protected by the SMC because they provide unique environmental functions that are difficult to replace. SMC 25.09 designates geologic hazard areas, steep slope erosion hazard areas, flood-prone areas, wetlands, fish and wildlife habitat conservation areas, and abandoned landfills as environmentally critical areas. Buffers and structure setbacks are also designated by SMC and are required to protect the functions of these environmentally critical areas.
- **Stormwater Regulations.** The City of Seattle ensures development complies with stormwater standards during the construction and operation phases of projects.
- **Environmental Health Regulations**. The Model Toxics Control Act of the State of Washington defines limits of contamination. Any project activities and related disturbances will need to address these limits based on the type of activity and proposed use of the parcel. The standards for voluntary cleanup for lower levels of contaminants are incorporated into new development or redevelopment parcels that have been noted to have contamination potential.

Changes to the shoreline environment would need to comply with these and other federal, state, and local environmental regulations. These ~~environmental~~ regulations condition development proposals to avoid, minimize, and/or mitigate potential impacts. Residual impacts are possible even with these environmental regulations and should be evaluated and avoided during project development.

Other Potential Mitigation Measures

- Mitigation measures would be developed on a case-by-case basis related to specific projects to comply with applicable federal, state, and City permitting requirements.
- Additional stormwater treatment would be integrated into new development or redevelopment as feasible including but not limited to green roofs, enhanced BMPs, and pervious pavement alternatives.
- New development or redevelopment could plant vegetation adjacent to streams and lakes to provide shade and organic inputs.

3.4.4 Significant Unavoidable Adverse Impacts

If all minimization and mitigation measures are implemented, no significant unavoidable adverse impacts are anticipated to plants and animals. The study area is already highly urbanized. Most plant species are nonnative introduced species common in urban environments. Development on industrial lands would not significantly reduce available habitat, particularly rare or unique habitat.

Terrestrial animal species in the study area ~~species~~ are adapted to urban conditions and have a high tolerance for human disturbance. Additional noise and disturbance that would be generated under the different alternatives would not be likely to adversely affect these species ~~in the study area~~. The project does involve changes to shoreline or critical area policies or regulations regarding in-water work and is not anticipated to result in direct noise and disturbance to aquatic species.

Redevelopment of previously developed areas provides opportunities to reduce urban runoff and pollutant loading to aquatic habitat, potentially contributing to improved water quality in the study area. Improved water quality would benefit special status aquatic species and critical habitat, as well as other animals that prey on aquatic species.