



CHAPTER 3: FISH, WILDLIFE, AND VEGETATION

3.1 Introduction

In this section, fish and wildlife and their habitat are described, along with an evaluation of street trees. The study area includes the area where project construction activities and operation (such as noise and light, permanent loss of habitat, or permanent disturbance) could potentially affect fish, wildlife, or their habitat. The study area is approximately 500 feet from the project footprint for terrestrial species and birds and includes the Ship Canal for fish (Figure 3-1). Street trees along the roads for each alternative are also described.

The following data sources have been reviewed:

- U.S. Fish and Wildlife Service (USFWS) Critical Habitat Mapper (USFWS, 2017);
- Washington Natural Heritage Program Database (Washington State Department of Natural Resources [WDNR], 2017);
- Priority Habitat and Species Database (Washington Department of Fish and Wildlife [WDFW], 2017a);
- SalmonScape (WDFW, 2017b);
- Washington State Species of Concern Lists (WDFW, 2017c); and
- Seattle Department of Construction and Inspections (SDCI) GIS (City of Seattle, 2017).

Changes from the DEIS

Chapter 3 includes analysis of the newly developed Preferred Alternative, which was not included in the DEIS. It also includes some additional information on potential mitigation measures that would comply with City regulations. No other substantive revisions were made to this chapter, relative to the DEIS.

3.2 Affected Environment

3.2.1 Fish and Wildlife

The study area is highly urbanized and made up of residential, commercial, and industrial areas as well as the Ship Canal. Within the study area, small areas of upland vegetation provide habitat for urban-adapted wildlife such as crows, gulls, some songbirds, raccoons, and rodents. Bald eagles, waterfowl, great blue herons, and other aquatic birds (such as kingfishers) are also found along the Ship Canal. The Carl S. English, Jr. Botanical Garden, on the north side of the Ballard Locks, is the largest greenspace in the study area, with the largest concentration of urban-adapted wildlife in the study area.

Federally Threatened and Endangered Fish Species

The Endangered Species Act (ESA), administered by the National Marine Fisheries Service (NMFS) and the USFWS, aims to protect and recover imperiled species and the ecosystems on which they depend. The City of Seattle is not required to enter into consultation with these agencies as there is no federal nexus associated with the project at this time (no federal funds would be used, no federal permits or approvals are required, and the project does not occur on federal land). Nevertheless, the potential impacts of the project on ESA-listed species are considered.

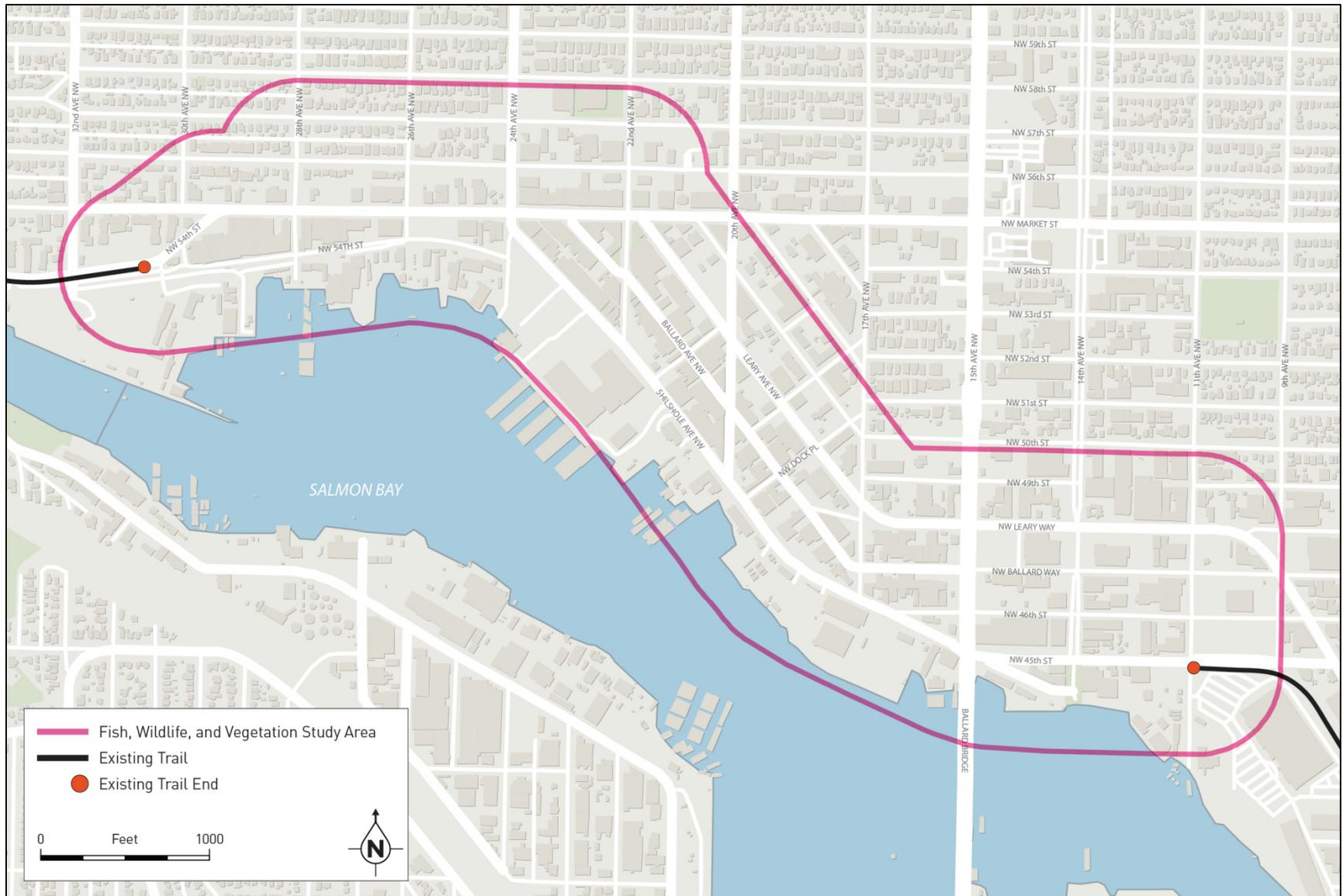


Figure 3-1. Fish, Wildlife, and Vegetation Study Area

Federally listed threatened and endangered species that potentially occur in the study area are listed in Table 3-1 (USFWS, 2017; WDFW, 2017c). No populations of threatened or endangered plant species are documented in the study area (WDNR, 2017).

Table 3-1. Federally Listed Species in the Study Area

<i>Federally Listed Species</i>	<i>Date Listed</i>	<i>Federal Status¹</i>	<i>State Status¹</i>	<i>Critical Habitat in Study Area</i>
Chinook salmon Puget Sound Evolutionarily Significant Unit (ESU)	1999	T	C	Yes
Steelhead Puget Sound Distinct Population Segment (DPS)	2007	T	none	No ²
Bull trout Coastal-Puget Sound DPS	1999	T	C	Yes
Marbled murrelet	1992	T	T	No
Yellow-billed cuckoo	2014	T	C	No

¹ T = Threatened; C = Candidate.

² Critical habitat is proposed for this species in the study area.

Source: USFWS, 2017; WDFW, 2017c.

Chinook, steelhead, and bull trout are listed as threatened and can be found in the Ship Canal. The Ship Canal is designated as critical habitat for Chinook salmon and contains freshwater primary constituent elements for Chinook salmon. A primary constituent element is a physical or biological feature essential to the conservation of a species upon which its designated or proposed critical habitat is based. The Ship Canal is also designated critical habitat for bull trout. There is currently no critical habitat designated for steelhead.

Water from the Cedar River, Sammamish River, and Lake Washington flow through Lake Union into Puget Sound via the Ship Canal, and thus it is the only route for migrating salmonids. The Ship Canal is an urbanized, busy corridor with high recreational and commercial boat traffic. Habitat and cover are limited in the Ship Canal as it is almost completely armored and includes many bulkheads, docks, and piers with little riparian or upland vegetation (Seattle Public Utilities [SPU] and U.S. Army Corps of Engineers [Corps], 2008). Water quality is generally good due to the volume of water flowing through the Ship Canal. In the summer, however, temperatures can be high and dissolved oxygen levels low; fecal coliform bacteria and contaminants can also be elevated (Washington State Department of Ecology [Ecology], 2017).

Adult salmonids tend to migrate quickly through the Ship Canal, with an average passage time of 1 to 4 days depending on species (SPU and Corps, 2008; NMFS, 2005). Chinook salmon smolts usually take 1 to 4 weeks to pass through the Ship Canal (SPU and Corps, 2008). Steelhead smolts move through the Ballard Locks in hours or days. Adult out-migrating salmon, in particular Chinook salmon, often hold just upstream from the locks in a cool water refuge near the saltwater drain before going through the locks (SPU and Corps, 2008).

Bull trout have been found in marine waters of Shilshole Bay and the Ballard Locks, just downstream from the study area, and have been observed infrequently in the study area. From late spring through early fall, surface water temperatures in the Ship Canal are too warm for bull trout and probably limit their residence time (USFWS, 2004).

Federally Threatened and Endangered Wildlife

The marbled murrelet and the yellow-billed cuckoo are listed as threatened, but are unlikely to be found in the study area due to lack of suitable habitat. There is no critical habitat for either species in the study area.

Bald eagles are protected under the federal Bald and Golden Eagle Protection Act. There are no known bald eagle nests in the study area. However, bald eagles may be seen in the study area, in particular near the Ship Canal.

State Species of Concern

Washington State has regulations to protect species of concern (WAC 232-12-297). Other than the federally listed species described above, there are no state endangered, threatened, or sensitive species within the study area. A peregrine falcon (State sensitive) nest was reported just outside of the study area on the Ballard Bridge in 2011 (WDFW, 2017a).

Seattle Regulations

The City protects wildlife habitat through their Critical Areas Ordinance (SMC 25.09). The botanical garden, and approximately 500 feet surrounding the botanical garden, is a Fish and Wildlife Habitat Conservation Area under the Critical Areas Ordinance (City of Seattle, 2017). A great blue heron rookery on the south side of the Ballard Locks is protected by the City Director's Rule 5-2007. The rookery protected by this rule is outside of the study area, but herons may use habitat within the study area. Great blue herons have been recorded as breeding within the botanical garden (WDFW, 2017a). The great blue heron is a State monitor species.

3.2.2 Street Trees

Street trees along the rights-of-way throughout the study area may be affected by the project. Street trees in Seattle are regulated under SMC 15.43. Street trees are "trees located in public places which includes public right-of-way and the space above or beneath its surface, whether or not open or improved, including streets, avenues, ways, boulevards, drives, places, alleys, sidewalks, planting strips, squares, triangles, and plazas that are not privately owned" (SDOT, 2014). All other trees in Seattle are regulated under SMC 25.11. The City of Seattle also developed an Urban Forest Stewardship Plan (City of Seattle, 2013), which conveys the value placed in urban trees and provides guidance for protecting them. Street trees are an important component of the urban forest. Street trees also provide habitat for urban-adapted wildlife. SDOT has mapped many of the street trees throughout the city (SDOT, 2017). Figure 3-2 shows street trees along the alignments for the five Build Alternative (including trees on the opposite side of the road from the proposed alternatives) (SDOT, 2017).

Many of the street trees in the study area are large, but they are not designated as heritage trees (SDOT, 2014, 2017). Heritage trees are a tree or group of trees given special designation by the Heritage Tree program, co-sponsored by Plant Amnesty and SDOT.



Figure 3-2. Street Trees in the Study Area

Table 3-2 lists streets with street trees and the common names of species for each alternative. For the Preferred Alternative, there are no street trees along Shilshole Ave NW, but there are 27 mapped trees along NW Market St along the side of the street where the alternative is proposed. There are no street trees along the Shilshole South Alternative. For the Shilshole North Alternative, there are no street trees along Shilshole Ave NW, but there are 36 mapped trees on NW 46th St and NW Market St along the side of the street where the alternative is proposed. The Ballard Avenue Alternative includes street trees along many portions of the alignment, including all of Ballard Ave NW and much of NW 56th St. The Ballard Avenue Alternative has 61 mapped trees along the side of the road where the alignment is proposed. The Leary Alternative has 102 mapped street trees along the side of the roads where the alternative is proposed; these roads are NW Leary Way, Leary Ave NW, and NW Market St (Figure 3-2) (SDOT, 2017). These numbers are estimates based on existing data; a tree survey would be conducted by a certified arborist after an alternative is chosen.

Table 3-2 also lists the connector segments and species of street trees. Since either side of the connector segments could be used at this stage of the design, the side of the road where the trees are located is indicated in Table 3-2.

Table 3-2. Mapped Street Trees Along Alternative Alignments and Connector Segments

<i>Alternative/Location</i>	<i>Species</i>	<i>Side of the Road</i>	<i>Approx. Number of Trees</i>
<i>Preferred Alternative</i>			
NW 54 th St	Beech	Northwest ¹	7
NW Market St	Wilfred Fox Whitebeam	South	27
NW Market St	Wilfred Fox Whitebeam, Freeman (red), Bowhall maples, Pyramidal European, Westminster Globe English Oak	North ¹	18
<i>Shilshole South Alternative</i>			
No street trees	n/a	n/a	0
<i>Shilshole North Alternative</i>			
NW 54 th St	Beech	Northwest ¹	7
NW Market St	Wilfred Fox Whitebeam	South	27
NW Market St	Wilfred Fox Whitebeam, Freeman (red), Bowhall maples, Pyramidal European, Westminster Globe English Oak	North ¹	18
NW 46 th St	Pacific Sunset maple	North	9
<i>Ballard Avenue Alternative</i>			
28 th Ave NW	Snowcone Japanese Snowbell	East	4
NW 56 th St	Black Cherry, Norway maple, Little Gem magnolia, Redspire pear, Blireiana Purpleleaf plum, Littleleaf Linden	South	16

<i>Alternative/Location</i>	<i>Species</i>	<i>Side of the Road</i>	<i>Approx. Number of Trees</i>
NW 56 th St	Maple, birch, Kousa dogwood, cutleaf Hornbeam, sweetgum, Vanessa Parrotia, flowering plum, Camellia, Green Vase Zelkova, Red oak, Littleleaf Linden, Snowcone Japanese Snowbell	North ¹	18
22 nd Ave NW	Armstrong Freeman (red) maple	West	6
22 nd Ave NW	English maple, Littleleaf Linden, and Norway, Bowhall, Armstrong Freeman (red) maples	East ¹	12
Ballard Ave NW/ NW Ballard Way	Honey locust, Armstrong Freeman (red) maple, pin oak	Southwest	35
Ballard Ave NW/ NW Ballard Way	Honey locust, pin oak, red oak, Armstrong Freeman (red) maple	Northeast ¹	33
NW 46 th St	Pacific Sunset maple	North ¹	9
<i>Leary Alternative</i>			
NW 54 th St	Beech	Northwest ¹	7
NW Market St	Wilfred Fox Whitebeam, Emerald Queen Norway maple	South	30
NW Market St	Wilfred Fox Whitebeam, Pyramidal European, Westminster Globe English Oak, and Norway, Freeman (red), and Bowhall maples	North ¹	42
Leary Ave NW	Snowcone Japanese snowbell, Prospector Elm, Okame cherry, Norwegian Sunset, English, paperbark, and red maple	Southwest	33
Leary Ave NW	Norway maple, Allee Lacebark Elm, flowering plum, Emerald sunshine Elm, Okame cherry, red maple, Katsura tree	Northeast ¹	28
NW Leary Way	Norway and English maple, plum	South	29
NW Leary Way	English maple, London plane, white birch, plum	North ¹	13
11 th Ave NW	Red maple, Redspire pear	East	10
<i>Connector Segments</i>			
Ballard Ave NW	Norway maple, Shumard red oak	Southwest	14
Ballard Ave NW	Red oak and Norway maple	Northeast	9
NW Vernon Pl	Pinoak and honey locust	Northwest	3
20 th Ave NW	Oak, a coniferous tree	West	8
20 th Ave NW	Pinoak, Shumard red oak, and red oak	East	9

<i>Alternative/Location</i>	<i>Species</i>	<i>Side of the Road</i>	<i>Approx. Number of Trees</i>
17 th Ave NW	Plum trees	East	11
15 th Ave NW	No street trees	n/a	0
14 th Ave NW	Mixture – maples and Frontier Elm	West	11

¹ Opposite side of the street from proposed alternative alignment.

Source: SDOT, 2017.

3.3 Potential Impacts

3.3.1 No Build Alternative

Under the No Build Alternative, no construction activities would be associated with a trail and there would be no tree removal. Routine maintenance of street trees, streets, sidewalks, and existing bicycle and pedestrian facilities would occur. There would be no impacts to fish and wildlife, including threatened and endangered species, from the No Build Alternative. Impacts to street trees are not anticipated.

3.3.2 Impacts Common to All Build Alternatives

Construction

Fish and Wildlife. Similar construction techniques and equipment would be used for each Build Alternative, including the Preferred Alternative and connector segments, regardless of location. As with any construction project, there is a risk of spills of petroleum products or other fluids from construction activities, which have the potential to enter the Ship Canal and affect fish through stormwater facilities that drain directly to the Ship Canal. There is also a potential for dust and erosion from excavated areas. However, the likelihood of listed fish in the study area being affected by construction of the Missing Link is very small. There would be no in-water work associated with the construction of the Missing Link.

There would be no impacts to listed birds, as they are unlikely to be found in the study area. Urban-adapted wildlife, such as birds and rodents, may be temporarily disturbed by construction noise or activities and may temporarily leave the construction area. However, as habitat is minimal and these species are accustomed to a disturbed environment, the impacts would be minimal.

Street Trees. The exact configuration and number of trees that could be affected by the trail alignment is not known at this stage of design. Street trees listed in Table 3-2 and shown on Figure 3-2 may be affected by construction. Removal of street trees would be avoided where possible, and thus the number of trees removed would be small. A certified arborist would conduct a tree survey and assess the health of each tree and develop a tree protection plan for the Preferred Alternative. For the Build Alternatives, including the Preferred Alternative, the majority of construction would be the side of the road where the trail is proposed. In some cases, there would be work on the opposite side of the street to accommodate a new roadway configuration (Table 3-2). This may result in impacts to street trees across the street from the alternative alignments. This is most likely to occur at the following intersections: the northwest side of NW 54th St in the Preferred Alternative, Shilshole North Alternative, and Leary Alternative, and the north side of NW 56th St in the Ballard Avenue Alternative. Modifications to the opposite side of the street are not anticipated along the other streets.

For the connector segments, street trees may also need to be removed during construction. Figure 3-2 and Table 3-2 show where connector segments may affect street trees. Impacts from the construction of the Preferred Alternative, Shilshole North Alternative, Ballard Avenue Alternative, and Leary Alternative would be minor, but not significant. There would be no impacts to street trees from the Shilshole South Alternative because there are no trees along this alignment.

Operation

Fish and Wildlife. After the project is completed, there would be no impacts to fish and wildlife, including threatened or endangered species. There would be no changes to habitat for threatened fish species in the Ship Canal as a result of the project. The completed trail should attract users, and thus there would be more pedestrians and bicyclists along the completed corridor than there are currently. This may disturb urban-adapted species. There would be some additional landscaping and trees planted, which would provide refuge for urban-adapted species.

The completed trail would include stormwater drainage improvements that would comply with Seattle stormwater standards. In some cases, this may be an improvement over existing conditions. Any improvements would not make a measurable difference to water quality in the Ship Canal; however, it would contribute to reducing non-point source pollution.

Street Trees. There would be no impacts to street trees from the operation of the trail in any location.

3.4 Avoidance, Minimization, and Mitigation Measures

3.4.1 Measures Common to All Alternatives

Measures to avoid impacts from construction of the Missing Link would be the same for all Build Alternatives, including the Preferred Alternative. Disturbance or removal of vegetation and wildlife habitat would be avoided where possible. Construction BMPs would be used to avoid spills, and minimize dust or erosion throughout the construction period. A Stormwater Pollution Prevention Plan (SWPPP) would be developed specifically for the project. Removal of street trees would be avoided where possible, and replaced following the tree protection regulations (SMC 15.43 and SMC 25.11). Additionally, Executive Order 03-05 requires that trees removed on city property to be replaced at a two to one ratio. Trees would be protected during construction and in accordance with the tree protection regulations and the Street Tree Manual (SDOT, 2014). Street trees may also be added in areas where there currently are no street trees. In most cases new street trees would be smaller than existing conditions, and would take a number of years to grow to similar stature.