

SEPA ENVIRONMENTAL CHECKLIST
Terminal 86: Elliott Bay Acclimation Net Pen Improvement
Project

Muckleshoot Indian Tribe, Suquamish Tribe, and the Port of Seattle

SEPA File #2020-03

PURPOSE

The State Environmental Policy Act (SEPA), Chapter 43.21 RCW, requires all governmental agencies to consider the environmental effects of proposed actions before making project decisions. The purpose of this checklist is to describe the proposed Elliott Bay Acclimation Net Pen Improvement project—addition of a second net pen, analyze and evaluate activities necessary to construct and operate the project, and identify measures to avoid, minimize, or off-set potential negative project effects. The following project information and evaluation will be used by the Port of Seattle to make a SEPA Determination, consistent with State SEPA code and Port of Seattle SEPA policies and procedures.

A. Background

1. Name of the proposed project, if applicable:

Elliott Bay Acclimation Net Pen Improvement Project

2. Name of Applicant:

Please note that the proposed project is a partnership, with the Muckleshoot Indian Tribe, the Suquamish Tribe, and the Port of Seattle acting as co-sponsors, and the port acting as project applicant.

3. Address and phone number of applicant and contact person:

Matthew Mateo
Port of Seattle
Phone: (206) 787-3433

4. Date checklist prepared:

June 2020

5. Agency requesting checklist:

Port of Seattle

6. Proposed timing or schedule (including phasing, if applicable):

The project is expected to begin in mid-August, 2020, requiring up to five days for installation/construction of the proposed addition of a second acclimation net pen. Following

installation of a second net pen, rearing of juvenile coho salmon will be conducted at the combined, two-net pen facility in a manner similar to operations in recent years for the existing single-net pen. Juvenile fish will be present February through May of each year, with the net pen structures moored at the Centennial Park-Terminal 86 aquatic area site year-round. Juvenile coho salmon are typically present up to four months, late winter/early spring. Following release of acclimated fish, the combined empty net pen frame structures, including floating buoys and spars, and anchor systems, will remain at the site, vacant and absent of operations for up to eight months, as with operations at the single existing acclimation net pen during the past twenty-seven years.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

There are no plans for future additions, expansion, or further activity related to or connected with this proposal at this time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- Hatchery and Genetics Management Plans, Ten Salmon and Steelhead Hatchery Programs in the Duwamish-Green River Basin, final Environmental Impact Statement (National Environmental Policy Act--NEPA), Biological Opinion (Endangered Species Act—ESA, Section 7(a)(2), and Essential Fish Habitat (EFH) (Magnuson-Stevens Fishery Conservation and Management Act)—Record of Decision, National Marine Fisheries Service, NOAA Fisheries, January 2020. EIS prepared with co-managers, Washington Department of Fish and Wildlife, Muckleshoot Indian Tribe, and Suquamish Tribe.
- Elliott Bay Coho Net Pen Project, Biological Evaluation and Essential Fish Habitat Assessment (ESA 2020).
- Elliott Bay Salmon Net Pen Study, National Pollutant Discharge Elimination System General Permit (WAG132000) Dive Report, US Environmental Protection Agency, Region 10, June 2017.
- Elliott Bay Acclimation Net Pen Improvements Project, Cultural Resources Literature Review (ESA 2019).

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no known pending governmental approvals or other proposals that would directly affect the property covered by the proposal.

9. List any governmental approvals or permits that will be needed for your proposal, if known:

The following permits/ approvals may be required for this project:

- Section 10 of the Rivers & Harbors Act, U.S. Army Corps of Engineers.
- Section 7 Endangered Species Act, NOAA Fisheries, National Marine Fisheries Service (NOAA Fisheries) and U.S. Fish and Wildlife Service (USFWS).
- National Pollutant Discharge Elimination System (NPDES), permit revision, U.S. Environmental Protection Agency
- United States Coast Guard (USCG) Private Aids to Navigation (PATON), permit revision.
- Shoreline Substantial Development Permit (SSDP), City of Seattle Department of Construction and Inspections.

10. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

The proposed Elliott Bay Acclimation Net Pen Improvement project supports native coho salmon by providing additional marine environment rearing capacity for acclimation of yearling coho salmon produced by the Keta Creek Hatchery, operated by the Muckleshoot Indian Tribe.

Existing acclimation net pen—background: The existing net pen facility has operated since 1993 and is used to acclimate up to 500,000 yearling coho salmon produced by the Keta Creek Hatchery Complex in Auburn, Washington. This represents approximately one-half of the Keta Creek hatchery yearly coho production. Net pen operations include the following annual activities: Young fingerling coho salmon are transported via tanker-truck to Elliott Bay from the hatchery and transferred to a small barge at Terminal 91. The juvenile coho are moved to the previously prepared net pen enclosure and placed in the protective net pen enclosure. Net pen acclimation begins in February/March with arrival of juvenile fish, with rearing during a period of 2 to 3 months, to strengthen the fingerlings and allow imprinting to the Elliott Bay release location. Juvenile fish are typically released in late May/early June.

The objective of fingerling acclimation and imprinting is to maximize the number of adult returns (1 to 2 years after release) to Elliott Bay for harvesting by Treaty tribe and non-Treaty fisheries, rather than returns of adult coho to the Green River, Keta Creek Hatchery. Please note that net pen operations reduce the number of adult coho returning to the Keta Creek Hatchery. Use of the net pen increases the harvest rate of coho salmon while minimizing interactions of these adult fish with natural spawning fish returning to the Green River. Only native coho salmon are reared in the Elliott Bay net pen facility. Native fish reared in net pens, including the Elliott Bay facility, have a safe history of use, and federal, state, and Treaty Tribe experts concur with the utility of net pen operations.

Proposed acclimation net pen improvement: The proposed project includes addition of a new net pen, identical in size and configuration to the present net pen, using components similar to the existing net pen (recently repaired and maintained, December/January 2019/2020). The proposed project would expand the holding or stocking capacity from its current 500,000 coho fingerlings in one net pen, to one million fish held in two net pens, doubling both the project footprint and net pen holding capacity. The second, new net pen and associated components would be positioned to the south, adjacent to the location of the existing net pen, creating a total net pen facility area approximately 276 feet in length (parallel to the shoreline), and about 69 feet in width. The new net pen would include two new pin-pile anchors, four additional drag embedment anchors, four additional spar buoys, six new compensator/crown buoys, and associated anchor and grid lines (please refer to Table 1). The proposed net pen has been designed by the firm, *InnovaSea*, and all information on proposed system components, construction methods, and structural details was provided by this firm.

Table 1. Existing and Proposed Net Pen System Components

Existing Structure	Existing Quantity	Proposed Quantity
Pin-Pile Anchors	3	5
Drag Embedment Anchors	5	9
Anchor Lines	8	14
Spar Buoys	6	10
Compensator/Crown Buoys	3	9
Gridlines	14	22
Volume	140,000 cubic feet	280,000 cubic feet
Dimensions	114' x 54'	228' x 54'
Net Pen(s)	1	2

The new net pen structure would be anchored in a similar manner as the existing structure (see Sheet 2 and 3 in Attachment A). Five pin-piling will be installed at the existing Centennial Park/Terminal 86 armored bank-line (elevation approximately plus five feet to minus two feet MLLW, similar to existing pin-pile locations), east of the net pen facility, serving as in-shore attachment points for net pen anchor mooring lines. A vibratory hammer, operated by barge-mounted crane equipment, will be used to install the metal pin-piling. The 5-inch diameter, steel piles would be driven 16 to 18 feet into the substrate, leaving 2 to 4 feet of exposed pile to attach anchor chains and mooring lines. Mooring cables/chain would be shackled to the piles on board a barge before the piles are driven into the substrate, while mooring lines would be attached when the spar buoys are installed, with the aid of divers. If obstructions are encountered and the pile cannot be driven at least 16 feet into the substrate, the pile would be extracted and re-driven a short distance away. The potential area of disturbance is not expected to exceed 16 square feet at any single pile driving location. The five piles would be placed approximately 70 feet apart along approximately 280 linear feet of shoreline.

Five, 3,000-pound drag embedment anchors would be installed by a crane barge west of the net pen facility serving as off-shore attachment points, with anchor depths at various depths approximately minus 80 to 90 feet MLLW, similar to the pattern of existing net pen anchor deployments. Substrate disturbance is expected to be less than about 50 square feet for each anchor, depending on how quickly the anchor is embedded. Anchor placement will not require dredging or the placement of fill in Elliott Bay. The off-shore anchors would be placed up to 450 feet water-ward of the armor shoreline MLLW contour, in deep sub-tidal area, up to minus 90 feet MLLW.

Anchor chains and mooring lines would be attached to the anchor onboard the barge and then attached to the mooring bridle on the spar buoy. The barge would back away from the spar buoy while feeding out the line and chain. As the mooring line becomes taut, the anchor would be deployed and lowered to near the substrate with an anchor setting line. The barge would continue to back away, pulling on the anchor setting line to move the anchor into final position and tightening the mooring lines. The drag type embedment anchors would then be lowered to the substrate to engage the anchor flukes, and the setting line would be removed. Please note that the combined

net pen facility will be positioned approximately 225 water-ward of the existing bank-line MLLW contour, identical to the existing single net pen. In-shore mooring lines connecting to shoreline pin piling and deep sub-tidal off-shore anchor lines holding the net pen facility in place will “hang” below the water surface, curving in down-ward loops, at depths sufficient to avoid disruption of boat movement in the area of the net pens. Net pen mooring lines will be approximately ten feet below MLLW within 50 feet of the existing bank-line and approximately ten feet below the water surface with 50 to 60 feet of the off-shore margin of the net pen facility.

The new net pen will be positioned similar to the existing net pen, in deep sub-tidal aquatic area, approximately minus 46 feet MLLW. This would provide a minimum of about 18 feet between the bottom of the net pen and deep sub-tidal substrate, allowing marine water circulation throughout the net pen area and preventing grounding of enclosure nets, spar floats, and anchor lines (see Sheet 5 in Attachment A). Similar to experience gained during more than 25 years of juvenile salmon acclimation operations in northeast Elliott Bay, enclosure netting would be attached to installed physical spar and buoy net pen systems in February to early-March of each year, immediately followed by placement of juvenile fish, and with fish release to Elliott Bay in late-May to early-June. Following each late winter/early spring fish acclimation period, net pen enclosure netting is detached after the release of fish, removed from the site, cleaned, and stored for the deployment the following year. The physical components of the combined acclimation net pen facility, including pin-piling, embedded anchors, anchor lines, spar buoys compensator/crown buoy, and mooring/grid lines remain in place year-round. The above-water dimension of the combined net pen facility, the maximum height of the net pens, will be approximately four to six feet above the water surface.

Please note that the combined net pen facility will be marked with lights consistent with U.S. Coast Guard navigation requirements.

11. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The project is located at approximately 47.622097, -122.367482 and is within sub-tidal Elliott Bay aquatic area, off-shore of Terminal 86/Centennial Park, within the City of Seattle (City) (Township 24 North, Range 3 East, Section 25), King County, Washington, and within Water Resource Inventory Area (WRIA) 9 (see Sheet 1 of 6). The overall project footprint extends from just below the MLLW shoreline contour (NAVD88) out to about 450 feet offshore, in depths ranging from about -15 to -100 feet (MLLW) . The project area also extends for about 670 feet parallel to the shoreline of Myrtle Edwards Park, and encompasses the approximately 15,000 square-foot area of the proposed net pen structures, as well as locations of the mooring anchors and cables needed to hold the net pens in place (See Sheet 2 of 6).

B. Environmental Elements

1. Earth

a. General description of the site (underline):

Flat, rolling, hilly, steep slopes, mountainous, other

The site is in the waters of Elliott Bay.

b. What is the steepest slope on the site (approximate percent slope)?

The project is entirely within the surface waters of Elliott Bay; the maximum slope of the seabed in the project area is approximately 25 percent.

c. What general types of soils are found on the site (for example clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The project is within the sub-tidal aquatic area in Elliott Bay. Terminal 86/Centennial Park upland area and shoreline consist of filled former northeast Elliott Bay aquatic area. The bank-line area at the land-ward margin of the proposed project includes an approximately 2:1 (horizontal: vertical) armor rock slope extending from upland elevations of approximately plus 16 to 18 feet MLLW to sub-tidal toe-of-slope aquatic area, approximately 15 to 20 feet below MLLW. Terrestrial geology adjacent to the project area consists of tide flat deposits composed of silt, sand, organic sediment, and detritus with some shell. The tide flats are underlain by Vashon-aged unconsolidated or semi-consolidated alluvial clay, silt, sand, gravel, and cobble deposits (Washington Geologic Information Portal 2019).

Information was extrapolated from nearby exploratory borings conducted along the shoreline as part of the construction of the existing Terminal 86 Grain Terminal Project in the late 1960s. Boring data indicate that the substrate in the subtidal portions of the project area consists of a soft silt surface layer, above gray dense sand with shell, overlying poorly graded medium to coarse grain sand, over very dense, slightly silty sand and gravel, above gray, very dense gravelly, silty fine to medium grain sand (Neil H. Twelker and Associates, Inc. 1966).

d. Are there any surface indications or a history of unstable soils in the immediate vicinity? If so, describe.

Seattle is in a moderately active earthquake region where the Juan de Fuca plate is thrust beneath the North American plate along the toe of the continental slope (Galster and Laprade 1991). The Uniform Building Code (1997 Edition) places the Puget Sound area within Seismic Zone 3, which indicates significant seismic risk. The design level earthquake for this zone is magnitude 7.0 to 7.5 with peak ground acceleration of about 0.3g.

Filled upland area, land-ward of the proposed project site is identified as a liquefaction prone area. No sub-tidal substrate indications or historical records indicate the presence of unstable conditions in the water-ward portions of the project site.

e. Describe the purpose, type, total area, and approximate quantities of total affected area of any filling or grading proposed. Indicate source of fill.

The proposed project does not include filling or grading activities in existing bank-line or aquatic areas.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

There is no effect or potential for erosion. The project will not disrupt sub-tidal, inter-tidal, or shoreline conditions. Construction would include vibratory pin pile driving and the placement of embedment anchors and associated anchor chains and anchor lines.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

No portion of the site would be covered with new or replaced impervious surfaces.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

No significant impacts on filled upland area, shoreline, or subtidal aquatic area are anticipated due to the small area of disturbance, coarse texture of sediment, and the effects of currents. No negative erosion effects are anticipated. Effects related to increased turbidity during placement of drag embedment anchors are expected to be minimal and temporary, diminishing to background conditions within minutes of any installation/construction activity, and would meet state water quality standards, and would not persist following construction; therefore, there are no proposed measures to reduce or control erosion.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Construction: During construction activities, some minor exhaust emissions from construction equipment (barge, crane, compressors, and generators) can be expected during the 1- to 2-week project construction timeframe. Construction activities during the project construction timeframe may create short-term, intermittent increases in dust and emissions. These effects would be temporary in duration, minimal in nature, and limited to the immediate construction equipment and activities. No significant air quality impacts are anticipated from the project.

Operations: The only emissions from project operations are associated with the use of small watercraft for fish feeding, monitoring, and maintenance and a small barge deployed for transporting fish to the net pens and for annual net removal activities. The emissions from these sources would be similar to existing conditions and the emissions would be insignificant.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

There are no off-site sources of emissions or odors that may affect the project.

c. Proposed measures to reduce or control emissions or other impacts to air, if any.

Measures that could be incorporated during construction to minimize impacts on air quality include the following:

- Equip construction vehicles with appropriate emission controls.
- Comply with the Puget Sound Clean Air Agency (PSCAA) regulations to control odorous emissions to prevent undue interference with nearby users.

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

Yes. The project is entirely within Elliott Bay, a portion of Puget Sound.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

Yes. The entire project would be constructed within the northeastern portion of Elliott Bay, just off-shore of Centennial Park. Once construction is complete, the net pen would be used to rear young fingerling coho salmon for 2 to 3 months every year beginning in February/March 2020.

Project plans are available in Attachment A.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

No fill or dredge material would be placed in or removed from surface waters or wetlands. Drag type anchors and pin piling anchors proposed for the new net pen do not require fill or dredging for placement.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities, if known.**

The project would not require any surface water withdrawals or diversions.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

The project is within Elliott Bay, with all activities located water-ward of MHHW, aquatic area located in non-flow restricted flood plain area.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

Potential water quality effects resulting from operation discharges from the proposed Elliott Bay net pen improvement project were analyzed and evaluated in the NOAA documents

referenced in Item A.8. above, Hatchery and Genetics Management Plans, Ten Salmon and Steelhead Hatchery Programs in the Duwamish-Green River Basin, final Environmental Impact Statement (National Environmental Policy Act--NEPA), Biological Opinion (Endangered Species Act—ESA, Section 7(a)(2), and Essential Fish Habitat (EFH) (Magnuson-Stevens Fishery Conservation and Management Act)—Record of Decision, National Marine Fisheries Service, NOAA Fisheries, January 2020.

The Hatchery and Genetics Management Plans (HGMP) EIS analysis included the rearing of 1,000,000 coho yearlings at the Elliott Bay net pen location, including operational effects relating to water quality and nutrient cycling, concluding that potential negative effects would be minimal. Please note that the EIS materials analyzed and evaluated three critical potential negative effects due to operations: (1) accumulation of bio-deposits (2) accumulation of metals, and (3) use of therapeutic compounds. The potential for these negative effects was determined to be minimal. In particular, note that operations at the existing Elliott Bay net pens have not, nor would the proposed net pen improvements include future use of therapeutic compounds. In addition, the short duration of yearling coho residence in the pens would substantially reduce or eliminate the accumulations of metals.

Relating to potential effects from accumulation of bio-deposits (for example, fish feces and uneaten feed) on water quality and the aquatic environment beneath the net pens, the NOAA Fisheries analysis and evaluation indicated only minimal effects on water column conditions and-sediment chemistry, including potential effects on benthic and infaunal biota.

Based on more than 25 years operational records and site experience, the existing net pen facility used an average of 23,100 pounds of fish food to raise an average of 400,000 juvenile coho from 1994 through 2019. These data indicate an average yearly application rate of approximately 0.058 pounds per fish. This amount of food will increase proportionally, roughly doubling with the addition of rearing capacity to a new average of approximately 46,200 pounds per year. The NOAA Fisheries analysis and evaluation determined that increased deposition of fish waste and uneaten food associated with the proposed net pen improvement project would be limited to minimal, seasonal potential negative effects.

Finally, please note that existing net pen operations have been monitored as a requirement of National Pollutant Discharge Elimination System General Permit requirements. No discharge permit condition exceedances have been recorded during the operational history of the Elliott Bay net pen facility. The most recent monitoring results are presented in the Elliott Bay Salmon Net Pen Study, 2017 dive report referenced in Item A.8 above. The dive report confirmed no visible bacterial mats or evidence of anoxic sediments at the net pen site. No significant visual evidence of unconsumed fish feed in the area of the net pens was reported. The 2017 dive report also indicated that water column dissolved oxygen and sediment organic carbon at the net pen site were consistent with discharge permit requirements.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.**

The project would not involve the use of or impacts on groundwater sources, including groundwater wells, in the project area.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

No waste materials would be discharged into the ground from septic tanks or other sources.

c. Water Runoff (including stormwater)

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

As the project is within Elliott Bay, no water runoff or stormwater would be generated at the project site.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.**

No construction waste materials would enter surface or ground waters. Project operation would result in the presence of fish waste and feed in Elliott Bay as noted in Item 3.A.6. However, none of the waste materials are present within water runoff. Please note that previous monitoring (Refer referenced NOAA Fisheries and EPA documentation, Item A.8) indicates that potential negative effects on marine water quality due to material deposition or other operational acclimation net pen effects on Elliott Bay water quality due to the proposed expansion of rearing capacity would be insignificant and would not negatively affect aquatic species.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe**

The proposal would not alter or affect drainage patterns in the vicinity of the project.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

The current NPDES permit would be revised and re-issued by the EPA to reflect the larger net pen area and increase in coho rearing capacity. The updated permit would stipulate requirements for monitoring water and sediment quality as well as reporting, expanded to include the larger footprint and higher fish densities. As with the existing NPDES, limited and minimal use of anti-fouling agents (including copper used in common marine anti-fouling compounds) and anti-bacterial additives (including zinc fish feed additives) will be permitted. Please note that anti-fouling agent and fish

food additives are used throughout nation-wide hatchery and net pen operations. Decades of hatchery and net pen facility operations have been demonstrated to have minimal effect on fish health and the aquatic environment. All are approved, as stipulated in NPDES permit conditions, including upper limits, professional standards, and “industry limits”. In addition, the 2020 NOAA final EIS and Record of Decision included analysis of anti-fouling and fish additive materials.

4. Plants

a. Check the types of vegetation found on the site:

- ☐ deciduous tree: alder, maple, aspen, other
- ☐ evergreen tree: fir, cedar, pine, other
- ☐ shrubs
- ☐ grass
- ☐ pasture
- ☐ crop or grain
- ☐ Orchards, vineyards or other permanent crops.
- ☐ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- ☒ water plants: water lily, eelgrass, milfoil, other: **kelp**
- ☐ other types of vegetation

Because of the site location within Elliott Bay, there is no terrestrial vegetation directly on site. Moderate growth of seasonal bull kelp (*nereocystis*) is present at the proposed project site, located between the proposed net pen improvements and the Terminal 86/Centennial Park bank-line, east of the existing net pen.

b. What kind and amount of vegetation will be removed or altered?

No vegetation would be removed or altered. Existing kelp growth area will not be adversely affected during construction or operation of the combined net pen facility due to the small benthic footprint of the proposed project and installation/construction activities taking place after peak kelp growth season and in aquatic area, generally, deeper than Elliott Bay kelp growth area.

c. List threatened or endangered species known to be on or near the site.

No threatened or endangered plant species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

No landscaping is proposed, and the project will not remove any native vegetation.

e. List all noxious weeds and invasive species known to be on or near the site.

There are no noxious or invasive weeds within the project site. Himalayan blackberry and reed canarygrass are located on the shoreline, above the mean higher high water (MHHW) at the east edge of the parkland. Acclimation of native coho salmon will not introduce invasive species.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk, songbirds, waterfowl, American wigeons, American crows, several gull species, bald eagle, belted kingfisher, great blue heron, mallards, mergansers, cormorants, surf scoters, rock doves, killdeer, brandts, pintails, pigeon guillemot, goldeneyes, osprey, red-tailed hawk, woodpeckers, swallows, American robin, pine siskin, sparrows.

mammals: deer, bear, elk, beaver, harbor seals, sea lions.

fish: bass, salmon, trout, herring, surf smelt, sand lance, salmon, steelhead, anadromous trout, rockfish, herring, sculpin, and numerous other marine fishes.

(Source: eBird 2019; WDFW PHS 2019)

b. List any threatened or endangered species known to be on near the site.

NOAA Fisheries and the USFWS indicate that the project is within the range of the federally listed species and designated critical habitats listed in Table 2 (NOAA Fisheries 2019a, 2019b; USFWS 2019a, 2019b).

Table 2. Documented Threatened or Endangered Species in the Vicinity of the Project.

Common Name	Scientific Name	ESA Status*	Jurisdiction	Critical Habitat
Puget Sound Evolutionarily Significant Unit (ESU) Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Threatened	NOAA Fisheries	Yes
Puget Sound Distinct Population Segment (DPS) Steelhead	<i>Oncorhynchus mykiss</i>	Threatened	NOAA Fisheries	Yes
Coastal-Puget Sound DPS Bull Trout	<i>Salvelinus confluentus</i>	Threatened	USFWS	Yes
Yelloweye Rockfish	<i>Sebastes ruberrimus</i>	Threatened	NOAA Fisheries	Yes
Bocaccio Rockfish	<i>Sebastes paucispinis</i>	Endangered	NOAA Fisheries	Yes
Southern DPS Eulachon	<i>Thaleichthys pacificus</i>	Threatened	NOAA Fisheries	No
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	Threatened	USFWS	No
Southern Resident Killer Whale	<i>Orcinus orca</i>	Endangered	NOAA Fisheries	Yes
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered	NOAA Fisheries	No

***Threatened:** Species are likely to become endangered within the foreseeable future.

Endangered: A species that is in danger of extinction throughout all or a significant portion of its range.

c. Is the site part of a migration route? If so, explain.

The project site, along with the entire Puget Sound region, is within the Pacific Flyway, which is a corridor for migrating waterfowl and other birds. The Pacific Flyway extends south from Alaska to Mexico and South America. No portion of the proposed project would interfere with or alter the Pacific Flyway. The nearshore waters along the shoreline are also part of the migration route for eight salmonid species, as they migrate to and from natal streams. Several marine mammals migrate through Puget Sound, and could occasionally occur in the project vicinity.

d. Proposed measures to preserve or enhance wildlife, if any.

With the exception of coho salmon, which the project directly affects, there are no other proposed measures to preserve or enhance wildlife.

Potential fish and wildlife effects resulting from operation of the proposed Elliott Bay net pen improvement project were analyzed and evaluated in the NOAA documents referenced in Item A.8. above, Hatchery and Genetics Management Plans, Ten Salmon and Steelhead Hatchery Programs in the Duwamish-Green River Basin, final Environmental Impact Statement (National Environmental Policy Act--NEPA), Biological Opinion (Endangered Species Act—ESA, Section 7(a)(2), and Essential Fish Habitat (EFH) (Magnuson-Stevens Fishery Conservation and Management Act)—Record of Decision, National Marine Fisheries Service, NOAA Fisheries, January 2020.

The Hatchery and Genetics Management Plans (HGMP) analysis in the EIS included the rearing of 1,000,000 coho yearlings at the Elliott Bay net pen location, concluding minimal potential negative operational effects on fish and wildlife in the area of the project, including potential effects on threatened and endangered species.

e. List any invasive animal species known to be on or near the site.

Although there are no specific reports or sightings of marine invasive species within the project area, over 40 non-native animal species have been found in Puget Sound, with many of those in King County. It is possible that one or more such species, such as the colonial sea squirt (*Didemnum lahillei*) or large brown alga (*Sargassum muticum*) may be within, or adjacent to, the project area. Non-native species may be introduced through ballast water discharges, transport on ships' hulls, importation of aquaculture species, and importation in live seafood shipments. None of these sources is associated with the proposed project.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The completed project would require electricity, generated from small, self-contained batteries or solar, used to power the navigation warning lights on the net pen. Boats, barges, construction crane, and fish-haul trucks will use gas or diesel fuel.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project would not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Because of the project only having short-term energy use during construction, no energy conservation measures have been developed.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

With any construction project, there is the risk of potential construction-related spills or leaks. This project may include similar, unanticipated risks, but all risks would be well within the range of typical construction projects. No toxic chemicals would be used or stored at the construction sites, other than fuels and other construction-related fluids.

1) Describe any known or possible contamination at the site from present or past uses.

Elliott Bay has previously been contaminated with heavy metals such as copper, lead, zinc, and arsenic as well as other compounds like petroleum products and PCBs (Tetra Tech 1985). Clean-up activities have previously taken place within the bay (Ecology 1994).

There are no recorded contaminated sites within the project site. However, Washington Department of Ecology (Ecology) databases identified numerous contaminated sites within 1 mile of the project (Ecology 2019). The remediation process status varies for these sites. No known contaminated sites are in the area that would be disturbed by the project.

The project site is listed as a Category 5 water for bacteria by the Ecology 303(d) list (Ecology, 2019). The project area waters do not contain any Category 5 303(d) listings for sediment (the project area does have a Category 2 listing for 2,4-Dimethylphenol, indicating a water of concern).

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

No hazardous chemicals/conditions would affect the project development and design.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

Besides fuel to power construction equipment, no toxic or hazardous chemicals would be stored, used, or produced on site. Please note that detailed analysis and review included in NOAA Fisheries 2020 final EIS and Record of Decision findings indicates minimal potential effects due to anti-fouling materials and feed additives.

4) Describe special emergency services that might be required.

Emergency services are not anticipated at the site. In the unlikely event that an accident occurs, the local emergency service, and/or the U.S. Coast Guard, would respond.

5) Proposed measures to reduce or control environmental health hazards, if any:

Measures to ensure worker safety would be developed in the health and safety plan prepared by the contractor.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Vehicular traffic is present along the roadways adjacent to the site as well as air traffic above the site. Rail traffic on the shoreline and vessel traffic in Elliott Bay are also present. It is not expected that any of these noise sources will affect the project.

2) What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction of the project would cause short-term noise impacts in areas directly adjacent to construction activity. Noise impacts are anticipated during the approved in-water work window of July 16 to February 15. The largest impacts from noise would occur from the installation of the five new pin-pile anchors, using a crane barge with a vibratory pile driver. The noise from this activity would be present intermittently over a single day.

Vibratory pile driving would result in average maximum terrestrial noise levels (L_{max}) of approximately 101 dBA (at 50 feet) during pile drive (WSDOT 2019). Installation activities would take approximately 1-2 days total, in daylight hours during the work week. Each pin-pile installation would take one hour or less, with a one to two hour break between pin-pile installation to reposition equipment, for a maximum of 5 hours of noise from vibratory pile installation in a 1 to 2 day period.

Inwater noise from these activities would result in a 150 dB_{RMS} source level (measured at 10 meters). A noise analysis in the Biological Assessment prepared for the project (ESA, 2020) indicates that the in-water noise is not of a magnitude to cause permanent injury or death to marine mammals or diving sea-birds, and that any temporary behavioral effects would be minor in scale.

Other construction equipment, including a barge, barge-mounted crane, and compressors, would also be present during construction. This equipment would generate noise levels of approximately 80 dBA (at 50 feet) (WSDOT 2019). This noise would occur in daylight hours during the work week, over a 1- to 2-week time period.

The only operational noise would be from a single small boat, used for net deployment, fish feeding, maintenance, and monitoring when the net pen is in use (February to June) and a small barge used for annual net removal and fish placement, and several truck trips to transport the fish from the hatchery. The duration and magnitude of these noise impacts would be similar to that of boat use under existing conditions at the current facility.

3) Proposed measures to reduce or control noise impacts, if any:

Because the project area is in the open marine waters of Puget Sound, no additional noise attenuation for operational factors are required. However, to minimize noise impacts during construction, contractors would comply with all local and state noise regulations.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The inwater site is currently used for the net pen for raising coho salmon. Adjacent to the project site (including the uplands), but on the same parcel, a grain transshipment facility, including a large dock, is present. The transshipment facility and associated grain elevator and conveyor in the uplands constitutes the Port of Seattle-owned Terminal 86. The grain facility, operating since 1970, stores and loads corn, soybeans, lentils, and wheat onto ships for commerce.

The same Port of Seattle parcel that contains Terminal 86 also contains Centennial Park, as publicly-owned port property.

A BNSF-owned railroad corridor is just east of the Port property.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The site is within Elliott Bay and the land have not been used for farmlands or as a working forest.

Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

There are no working farm or forest land businesses in the project vicinity.

c. Describe any structures on the site.

The existing net pen is the only structure on site and is 54 feet wide by 114 feet long by 25 feet deep and 140,000 cubic feet in volume. The pen is suspended between six metal spar buoys, and held in place by a system of eight submerged anchors and mooring lines (see Sheet 3 of Attachment A). Five of the anchors are drag type substrate embedment anchors, while the other three are pin-piling, 5-inch diameter solid steel piles present in armor substrate near the base of the riprap shoreline, approximately minus two to minus six feet (MLLW). All of the anchors are attached to the spar buoys with anchor chains, mooring lines, and bridle components that keep the spar buoys vertical and the net pen sides taut.

Previously removed, cleaned (in upland drainage controlled area) enclosure netting is re-attached to the physical spar and buoy elements of the acclimation net pen facility in early January or February of each year, and the fish are hand fed until their release date in late May to mid-June of the year, when fish are released on-site in Elliott Bay. Please note that all netting is removed each year, after the release of fish, cleaned, repaired, and stored off-site for the deployment the following year. The spars, anchors, anchor chains, and compensator floats are left in place year-round.

d. Will any structures be demolished? If so, what?

The present project does not include demolition activities.

e. What is the current zoning classification of the site?

The zoning classification is IC-65(M).

f. What is the current comprehensive plan designation of the site?

The City of Seattle Comprehensive Plan designates the site as "Industrial Area."

g. If applicable, what is the current shoreline master program designation of the site?

The current Shoreline Master Program designation is Conservancy Management (City of Seattle 2019a).

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

The site is designated as Wildlife Habitat by the City of Seattle (City of Seattle 2019a), as is the majority of nearshore habitat along the nearshore margins of Elliott Bay.

i. Approximately how many people would reside or work in the completed project?

No one would reside in the completed project.

Over 2 days in February or March, several workers would transport the coho from the hatchery by a truck to a barge to deliver to the net pen. In addition, workers would visit the site approximately 5 to 7 days out of the week (depending on weather) to perform regular duties including fish feeding (by hand) and net pen monitoring and maintenance (during the time the net pen is operational approximately February to June of each year). Diving also occurs for several days after fish delivery, to monitor fish acclimation.

Workers would only be present on site when the net pen is in use, which would be approximately 3 months every year beginning in February.

In addition, workers would deploy the nets for the net pens from a small barge prior to the deployment of fish and also would remove the nets once fish release has occurred.

j. Approximately how many people would the completed project displace?

The completed project would not displace any people.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Because no displacement would occur, no measures are proposed.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposed second net pen would not change the existing land use.

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no agricultural or forest lands in the project vicinity.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.**

No housing units would be provided.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.**

No housing units would be eliminated.

- c. Describe proposed measures to reduce or control housing impacts, if any.**

No housing impacts would occur, so no mitigation is required.

10. Aesthetics

- a. What is the tallest height of any of the proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

The proposed structures will extend four to six feet above water level, depending on tidal elevation. There is no change in height of improved net pen buoys or spars, compared with existing single net pen.

- b. What views in the immediate vicinity would be altered or obstructed?**

There is no change in existing structure height. Views in the immediate vicinity would not be altered or obstructed.

- c. Proposed measures to control or reduce aesthetic impacts, if any:**

No mitigation measures are proposed.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

The current net pen has two blinking navigation lights, for night-time navigation aid, on its waterward ends. The two navigation lights, as well as a potential third additional light between the two pens, would be installed at the project site, consistent with U.S. Coast Guard, Private Aids to Navigation (PATON) requirements. These lights produce minimal glare and are required for safety reasons.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?**

The project would not generate light or glare that could interfere with views.

- c. What existing off-site sources of light or glare may affect your proposal?**

No existing sources of light or glare would affect the project.

- d. Proposed measures to reduce or control light and glare impacts, if any:**

Light and glare impacts are not anticipated; therefore, no mitigation measures are planned.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Centennial Park is located on the shoreline immediately adjacent to the east side of the project site. The park included grade-separated bicycle trails, pedestrian walkways, and passive recreation sites.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The project would not displace any recreational uses or require any park closures.

c. Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant, if any:

No mitigation measures are proposed.

13. Historic and Cultural Preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

There are no buildings or structures over 45 years old and no other recorded cultural resources listed on or determined eligible for listing on the National Register of Historic Places (NRHP), Washington Heritage Register (WHR), King County Landmarks List, or City of Seattle Landmarks List within or adjacent to the project site.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

The Muckleshoot Indian Tribe and Suquamish Tribe are project partners and have identified no potential impacts to cultural and historic resources on or near the project site.

Based on a review of geological data and information on recorded cultural resources, the proposed project has low potential to encounter archaeological resources. The APE is in the subtidal zone of Elliott Bay, and sea level elevation in that area has been at modern levels for approximately the last 2,000 years.

Installation of the proposed net pen system would occur in undisturbed Elliott Bay substrate. The ground disturbance footprint for the anchor points of the proposed net pen system would be extremely low overall, limited to five, 5-inch diameter pin-pile anchors vibrated into the subtidal substrate near the existing riprap shoreline, and nine drag type embedment anchors in the seafloor.

No known cultural resources would be expected to be disturbed by the project. It is very unlikely that ground-disturbing activities associated with the project would encounter intact cultural resources.

Waters in the vicinity of most Port facilities are Treaty-protected "usual and accustomed" fishing areas. Fishing activities are managed by the Suquamish Tribe and Muckleshoot Indian Tribe. Fishing by Tribe members in these areas is consistent with past federal government treaties and subsequent federal court decisions. The project purpose is the enhanced Tribal fishing opportunities within the

Treaty-protected “usual and accustomed” fishing areas. Usual and accustomed activities apply to harvest as all as protection of salmon resources and improvement of fish stocks.

Available cultural resources information, included in Washington State Department of Archaeology and Historic Preservation (DAHP) database, as well as geological information (Dellert 2019), indicate little potential for disruption of cultural or archaeological materials.

According to the DAHP online database (WISAARD), there are no recorded archaeological sites or cemeteries within or adjacent to the project site. One previously recorded archaeological site is approximately 0.5 mile east of the APE. The Queen Anne Counterbalance Track Site (45KI1185) consists of historic debris and remnants of the former counterbalance including the track, wood ties, counterbalance, and hardware (Scott 2014). Site 45KI1158 has not been evaluated.

As of August 20, 2019, there have been seven cultural resources assessments listed on DAHP’s WISAARD database within 0.5 mile of the project site, although none were within the APE. The assessments included a combined sewer overflow project, collocation of a wireless tower, a light rail project, soil remediation, construction of a pedestrian overpass, and two reports associated with a commercial development project (Forsman et al. 1997; Billat 2004; Juell 2006; Schumacher 2007; Valentino and Rinck 2009; Flathman et al. 2007; and Hamilton et al. 2008). No cultural materials were identified in the first five investigations. For the commercial development project, during the assessment phase the Darigold Building (at 635 Elliott Avenue West) was inventoried for a formal City of Seattle Landmarks Nomination. The nomination was submitted in March 2007, but later found ineligible for listing (Flathman et al. 2007; Hamilton et al. 2008). During construction, archaeological monitoring of excavation activities identified the possible remnants of the former Elliott Bay Lumber Mill operation, including decomposing sawdust, wood chips, and fragments of dimensional lumber. The materials were determined not eligible for listing in the NRHP (Hamilton et al. 2008).

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The Muckleshoot Indian Tribe and Suquamish Tribe are project partners and have identified no potential impacts to cultural and historic resources on or near the project site.

Geographic information system (GIS) data layers for archaeological sites, cemeteries, historic properties, register-listed properties, cultural resource surveys, and predictive model were reviewed on DAHP’s WISAARD database (DAHP 2019). Ethnographic sources and historic-period maps and aerial photographs were also examined (Anderson, 1907; Hilbert et al., 2001; Kroll, 1912, 1926; Metsker, 1936; NETR Online, 1968, 1969, 1980, 2015; Thrush, 2007; USSG, 1855, 1863).

Local historic register information was reviewed online via King County Landmarks List (2019b) and City of Seattle Landmarks list (2019c).

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

The project would have no observable ground disturbance; as a result, no measures to avoid or minimize are proposed.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.**

The site is in the waters of Elliott Bay and is not served by public streets or highways, but rather by marine vessels.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?**

The site is not currently served by transit. The nearest stop is Elliott Avenue W and 6th Avenue W approximately 1,000 feet from the project site; however, there is no access to the site from the transit stop or the shoreline.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?**

The completed project would not create, alter, or eliminate any parking spaces.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).**

The project would not require any new or improvements to existing roads.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

The existing and proposed second net pen locations are in waters adjacent to the Port of Seattle Terminal 86 Grain Facility. However, the project would not alter any existing maritime uses. The project would not alter rail or air transportation.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?**

The completed project would not generate any daily vehicular trips or affect automobile traffic in any way, with the exception of several truck trips to site from the hatchery in Auburn to transport fish.

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.**

The project is within Elliott Bay and would not affect the movement of products through the project area.

- h. Proposed measures to reduce or control transportation impacts, if any:**

Because there are no anticipated impacts on transportation, no mitigation measures are proposed.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.**

The project would not result in the need for any additional public services.

- b. Proposed measures to reduce or control direct impacts on public services, if any.**

Impacts on public services are not anticipated; therefore, no mitigation measures have been developed.

16. Utilities

- a. Underline utilities currently available at the site:**

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

No utilities are available on site.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

No new utilities are proposed for the project.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: Matthew Mateo

Name of signee: Matthew Mateo

Position and

Agency/Organization: Senior Env. Management Specialist - Port of Seattle

Date Submitted: June 23, 2020

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