UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OR 97232-1274

Refer to NMFS No.:
WCRO-2019-00655

July 2, 2019

Douglas Lonstein
U.S. Department of Housing and Urban Development
Multifamily West Region, San Francisco Regional Center
One Sansome Street, Ste. 1200
San Francisco, California 94104

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Section 220 Loan for Waterfront Place Apartments in Everett, Washington (FHA Loan No. 127-32009), HUC: 171100191100 – Port Gardner.

Dear Mr. Lonstein:

Thank you for your May 31, 2019, request for consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the U.S. Department of Housing and Urban Development's (HUD) 220 Loan for Waterfront Place Apartments, Everett, Washington. Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1855(b)) for this action.

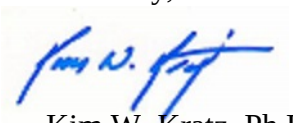
The enclosed document contains the biological opinion (Opinion) prepared by the NMFS pursuant to section 7(a)(2) of the ESA on the effects of the proposed action. In this Opinion, the NMFS concludes that the proposed action is not likely to jeopardize the continued existence of Puget Sound (PS) Chinook salmon, or to result in the destruction or adverse modification of their designated critical habitat. This document also serves to document our concurrence that the proposed action is not likely to adversely affect PS steelhead, Puget Sound/Georgia Basin (PS/GB) bocaccio, PS/GB yelloweye rockfish, southern resident (SR) killer whales, and designated critical habitat for those species.

As required by section 7 of the ESA, the NMFS has provided an incidental take statement with this Opinion. The incidental take statement describes reasonable and prudent measures the NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action, and sets forth nondiscretionary terms and conditions that HUD must comply with to meet those measures. Incidental take from actions that meet these terms and conditions will be exempt from the ESA's prohibition against the take of listed species.

This document also includes the results of our analysis of the action's likely effects on essential fish habitat (EFH) pursuant to Section 305(b) of the MSA. The NMFS reviewed the likely effects of the proposed action on EFH, and concluded that the action would adversely affect designated EFH for Pacific Coast Salmon, Pacific Coast groundfish, and coastal pelagic species. Therefore, we have included the results of that review in Section 3 of this document.

Please contact Donald Hubner in the North Puget Sound Branch of the Oregon/Washington Coastal Office at (206) 526-4359, or by electronic mail at Donald.Hubner@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,



Kim W. Kratz, Ph.D.
Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Brian Sturdivant, HUD

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

for

Section 220 Loan for Waterfront Place Apartments, Everett, Washington
Snohomish County, Washington (FHA Loan No. 127-32009)

NMFS Consultation Number: WCRO-2019-00655

Action Agency: U.S. Department of Housing and Urban Development

Affected Listed Species and Critical Habitats and NMFS's Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
Chinook salmon (*Oncorhynchus tshawytscha*) Puget Sound (PS)	Threatened	Yes	No	Yes	No
Steelhead (*O. mykiss*) PS	Threatened	No	No	N/A	N/A
Bocaccio (*Sebastes paucispinis*) Puget Sound /Georgia Basin (PS/GB)	Endangered	No	No	No	No
Yelloweye rockfish (*S. ruberrimus*) PS/GB	Threatened	No	No	No	No
Killer whales (*Orcinus orca*) Southern resident (SR)	Endangered	No	No	No	No

N/A = not applicable. The action area is outside designated critical habitat, or critical habitat has not been designated.

Affected Essential Fish Habitat (EFH) and NMFS' Determinations:

Fishery Management Plan That Describes EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes
Pacific Coast Groundfish	Yes	Yes
Coastal Pelagic Species	Yes	Yes

Consultation Conducted By: National Marine Fisheries Service
West Coast Region

Issued By:

Kim W. Kratz, Ph.D.
Assistant Regional Administrator
Oregon Washington Coastal Office

Date: July 2, 2019

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LIST OF ACRONYMS

BMP – Best Management Practices
CFR – Code of Federal Regulations
DQA – Data Quality Act
EF – Essential Feature
EFH – Essential Fish Habitat
ESA – Endangered Species Act
ESU – Evolutionarily Significant Unit
FHA – Federal Housing Administration
FR – Federal Register
GNMA – Government National Mortgage Association
HAPC – Habitat Area of Particular Concern
HUC – Hydrologic Unit Code
HUD – U.S. Department of Housing and Urban Development
ITS – Incidental Take Statement
JARPA – Joint Aquatic Resource Permit Application Form
MPG – Major Population Group
MSA – Magnuson-Stevens Fishery Conservation and Management Act
NMFS – National Marine Fisheries Service
OWCO – Oregon Washington Coastal Office
PAH – Polycyclic Aromatic Hydrocarbons
PBF – Primary Biological Feature
PCB – Polychlorinated Biphenyl
PCE – Primary Constituent Element
PFMC – Pacific Fishery Management Council
PS – Puget Sound
PSTRT – Puget Sound Technical Recovery Team
RPM – Reasonable and Prudent Measure
TTS – Total Suspended Solids
VSP – Viable Salmonid Population
WCR – Westcoast Region (NMFS)
WDFW – Washington State Department of Fish and Wildlife
WDOE – Washington State Department of Ecology

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

1.1 Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (Opinion) and incidental take statement portions of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 USC 1531 *et seq*.), and implementing regulations at 50 CFR 402.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 *et seq*.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). A complete record of this consultation is on file at the Oregon Washington Coastal Office.

1.2 Consultation History

On May 14, 2019, the NMFS received an electronic mail (e-mail) from the U.S. Department of Housing and Urban Development (HUD) asking to discuss the applicability of no-effect versus may-affect determinations for projects that would produce stormwater runoff.

On May 15, 2019, HUD shared details about the Waterfront Place Apartments project and requested feedback about whether or not consultation would be required for HUD's proposed 220 Loan to the developers for the Waterfront Place Apartments project in Everett, Washington. Numerous telephone calls and e-mails were exchanged between that date and June 3, 2019, when the NMFS received HUD's request for informal consultation, which also included their biological assessment (HUD 2019a) and determination addendum (D_3G 2019) for the project.

On June 14, 2019, the NMFS informed HUD by e-mail that formal consultation would be required for the action. That same day, the NMFS received HUD's revised determination and request for formal consultation (HUD 2019b), and formal consultation was initiated.

This Opinion is based on the review of the information identified above; the recovery plans, status reviews, and critical habitat designations for ESA-listed PS Chinook salmon; published and unpublished scientific information on the biology and ecology of that species; and relevant scientific and gray literature (see Literature Cited). A complete record of this consultation is on file at the Oregon Washington Coastal Office (OWCO) in Lacey, Washington.

1.3 Proposed Action

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies (50 CFR 402.02). "Interrelated actions" are those that are part of a larger action and depend on the larger action for their justification. "Interdependent actions" are those that have no independent utility apart from the action under consideration (50 CFR 402.02).

Pursuant to the Section 220 program of the National Housing Act, HUD proposes to insure a Government National Mortgage Association (GNMA)-financed loan to the Waterfront Place Limited Partnership (applicant) to partially fund the construction of the Waterfront Place Apartments in Everett, Washington (Figure 1).

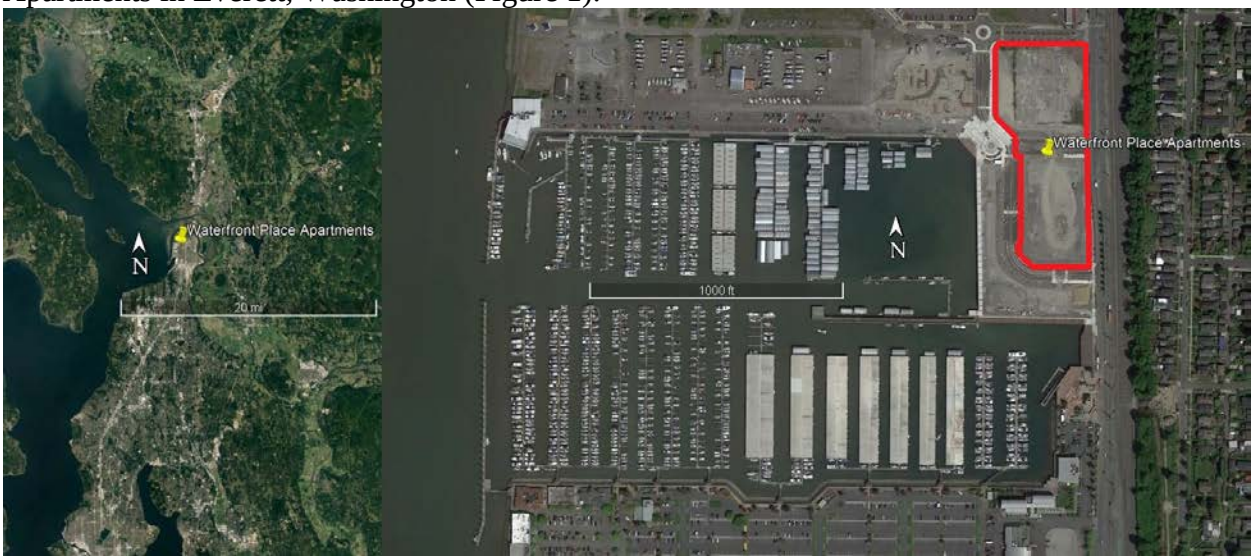

Figure 1. Google satellite photographs of the Waterfront Place Apartments property. The left image shows the project site on the west side of the City of Everett, Washington. The right image shows the property, outlined in red, relative to the Everett Central and South Marinas.

The Waterfront Place Apartments would be an independent development action being taken in coordination with the Port of Everett's larger Waterfront Place Central District development project that would redevelop about 11 acres of previously developed waterfront property adjacent to the Everett Marina. The 266-unit apartment complex would be built on 5.5 acres, and would consist of 2 apartment buildings, 2 adjacent parking lots, and connecting roads (Figure 2). The site is located about 160 feet inland from the east bulkhead of the marina's central basin, and extends north.

Construction of the apartment complex includes no in- or over-water work. However, stormwater from the complex would be discharged into the marina's central basin through multiple existing outfalls along the central basin's east bulkhead. Stormwater from the apartment complex would be collected and delivered to the stormwater treatment system that was constructed as part of the larger development project and is designed to manage expected volumes of stormwater for the entire 11-acre site, including the new apartment complex. The system has been designed such that over-topping of the system is not expected for storms less intense than 100-year events.

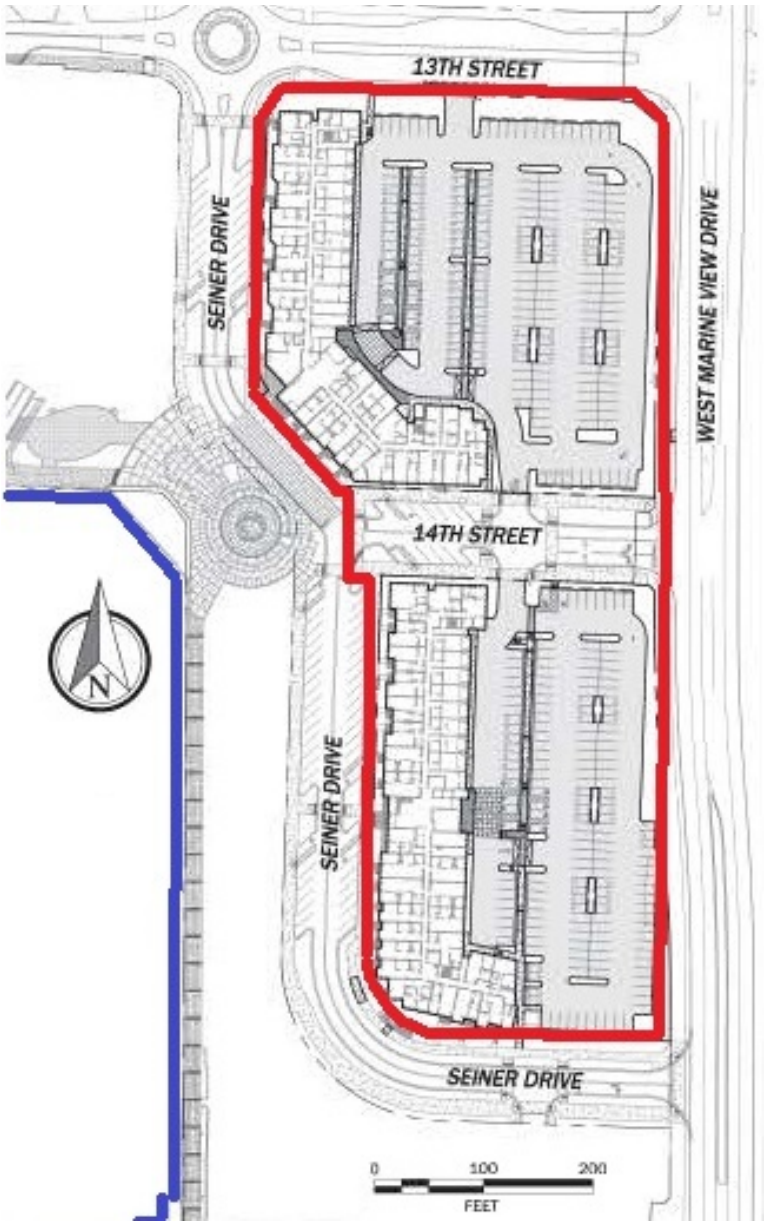

Figure 2. Plan drawing of the Waterfront Place Apartment project site. The apartment complex is outlined in red. The two buildings and parking lots are separated by 14th Street. The parking lots are shown in light gray, with the apartment buildings shown in white, west of the parking lots. The blue lines indicate the Central Marina's east and north bulkheads (Adapted from page 13 of HUD 2019a).

The stormwater management system includes the Modular Wetland Linear System (MWLS), which is a multistage filter system that consists of a pretreatment chamber, a biofiltration chamber, and a discharge chamber. The pretreatment and biofiltration chambers both include filtration media that come standard with all MWLSs (Pers. Comm. Pierce 2019). The standard MWLS is advertised to provide removal efficiencies of about 85% for total suspended solids (TSS); 95% for motor oil; 50% for total copper (38% dissolved copper); 69% for total zinc (66%

dissolved zinc); 64% for total phosphorus (67% ortho phosphorus); and 45% for nitrogen (Bio Clean 2019).

Interrelated and interdependent activities: Increased vehicular traffic at the apartment complex would be interrelated and/or interdependent with the proposed action. Once the complex opens, hundreds of vehicles would be present at the site every day due to the apartment complex's residents and guests. Service and emergency vehicles would also be frequently present at the site.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each Federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, Federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provides an opinion stating how the agency's actions would affect listed species and their critical habitat. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an ITS that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures (RPMs) and terms and conditions to minimize such impacts.

Table 1. ESA-listed species and critical habitats that may be affected by the proposed action.

ESA-listed species and critical habitat likely to be adversely affected (LAA)				
Species	**Status**	**Species**	**Critical Habitat**	**Listed / CH Designated**
Chinook salmon (*Oncorhynchus tshawytscha*) Puget Sound	Threatened	LAA	LAA	06/28/05 (70 FR 37160) / 09/02/05 (70 FR 52630)
ESA-listed species and critical habitat not likely to be adversely affected (NLAA)				
Species	**Status**	**Species**	**Critical Habitat**	**Listed / CH Designated**
steelhead (*O. mykiss*) Puget Sound	Threatened	NLAA	N/A	05/11/07 (72 FR 26722) / 02/24/16 (81 FR 9252)
bocaccio (*Sebastes paucispinis*) Puget Sound/Georgia Basin	Endangered	NLAA	NLAA	04/28/10 (75 FR 22276) / 11/13/14 (79 FR 68041)
yelloweye rockfish (*S. ruberrimus*) PS/GB	Threatened	NLAA	NLAA	04/28/10 (75 FR 22276) / 11/13/14 (79 FR 68041)
killer whales (*Orcinus orca*) southern resident	Endangered	NLAA	NLAA	11/18/05 (70 FR 57565) / 11/29/06 (71 FR 69054)

LAA = likely to adversely affect NLAA = not likely to adversely affect
N/A = not applicable. The action area is outside designated critical habitat, or critical habitat has not been designated.

2.1 Analytical Approach

This biological opinion includes both a jeopardy analysis and/or an adverse modification analysis. The jeopardy analysis relies upon the regulatory definition of "to jeopardize the continued existence of" a listed species, which is "to engage in an action that would be expected,

directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). Therefore, the jeopardy analysis considers both survival and recovery of the species.

This biological opinion relies on the definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features" (81 FR 7214).

Past critical habitat designations have used the terms primary constituent element (PCE) or essential feature (EF) to identify important habitat qualities. However, the new critical habitat regulations (81 FR 7414; February 11, 2016) replace those terms with physical or biological features (PBF). This shift in terminology does not change the approach used in conducting our analysis, whether the original designation identified PCE, EF, or PBF. For simplicity, we universally apply the term PBF in this Opinion for all critical habitat, regardless of the term used in the specific critical habitat designation.

We use the following approach to determine whether a proposed action is likely to jeopardize listed species or to cause the destruction or adverse modification of designated critical habitat:

- Identify the range-wide status of the species and critical habitat expected to be adversely affected by the proposed action.
- Describe the environmental baseline in the action area.
- Analyze the effects of the proposed action on both species and their habitat using an "exposure-response-risk" approach.
- Describe any cumulative effects in the action area.
- Integrate and synthesize the above factors by: (1) Reviewing the status of the species and critical habitat; and (2) adding the effects of the action, the environmental baseline, and cumulative effects to assess the risk that the proposed action poses to species and critical habitat.
- Reach a conclusion about whether species are jeopardized or critical habitat is adversely modified.
- If necessary, suggest a reasonable and prudent alternative (RPA) to the proposed action.

2.2 Range-wide Status of the Species and Critical Habitat

This Opinion examines the status of each species that would be adversely affected by the proposed action. The status is determined by the level of extinction risk that the listed species face, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. This informs the description of the species' likelihood of both survival and recovery. The species status section also helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR 402.02. This Opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up

the designated area, and discusses the current function of the essential PBF that help to form that conservation value.

The summaries that follow describe the status of the ESA-listed species, and their designated critical habitats, that occur within the action area and are considered in this opinion. More detailed information on the biology, habitat, and conservation status and trend of these listed resources can be found in the listing regulations and critical habitat designations published in the Federal Register and in the recovery plans and other sources at: http://www.nmfs.noaa.gov/pr/species/fish/, and are incorporated here by reference.

Listed Species

Viable Salmonid Population (VSP) Criteria: For Pacific salmonids, we commonly use four VSP criteria (McElhany *et al*. 2000) to assess the viability of the populations that constitute the species. These four criteria (spatial structure, diversity, abundance, and productivity) encompass the species' "reproduction, numbers, or distribution" as described in 50 CFR 402.02. When these parameters are collectively at appropriate levels, they maintain a population's capacity to adapt to various environmental conditions and allow it to sustain itself in the natural environment.

"Spatial structure" refers both to the spatial distributions of individuals in the population and the processes that generate that distribution. A population's spatial structure depends on habitat quality and spatial configuration, and the dynamics and dispersal characteristics of individuals in the population.

"Diversity" refers to the distribution of traits within and among populations. These range in scale from DNA sequence variation in single genes to complex life history traits.

"Abundance" generally refers to the number of naturally-produced adults that return to their natal spawning grounds.

"Productivity" refers to the number of naturally-spawning adults produced per parent. When progeny replace or exceed the number of parents, a population is stable or increasing. When progeny fail to replace the number of parents, the population is in decline.

For species with multiple populations, we assess the status of the entire species based on the biological status of the constituent populations, using criteria for groups of populations, as described in recovery plans and guidance documents from technical recovery teams. Considerations for species viability include having multiple populations that are viable, ensuring that populations with unique life histories and phenotypes are viable, and that some viable populations are both widespread to avoid concurrent extinctions from mass catastrophes and spatially close to allow functioning as metapopulations (McElhany *et al*. 2000).

The summaries that follow describe the status of the ESA-listed species, and their designated critical habitats, that occur within the geographic area of this proposed action and are considered in this opinion. More detailed information on the status and trends of these listed resources, and

their biology and ecology, are in the listing regulations and critical habitat designations published in the Federal Register.

Puget Sound (PS) Chinook Salmon: The PS Chinook salmon evolutionarily significant unit (ESU) was listed as threatened on June 28, 2005 (70 FR 37160). We adopted the recovery plan for this ESU in January 2007. The recovery plan consists of two documents: the Puget Sound salmon recovery plan (SSPS 2007) and the final supplement to the Shared Strategy's Puget Sound salmon recovery plan (NMFS 2006). The recovery plan adopts ESU and population level viability criteria recommended by the Puget Sound Technical Recovery Team (PSTRT) (Ruckelshaus *et al*. 2002). The PSTRT's biological recovery criteria will be met when all of the following conditions are achieved:

- The viability status of all populations in the ESU (Table 2) is improved from current conditions, and when considered in the aggregate, persistence of the ESU is assured;
- Two to four Chinook salmon populations in each of the five biogeographical regions of the ESU achieve viability, depending on the historical biological characteristics and acceptable risk levels for populations within each region;
- At least one population from each major genetic and life history group historically present within each of the five biogeographical regions is viable;
- Tributaries to Puget Sound not identified as primary freshwater habitat for any of the 22 identified populations are functioning in a manner that is sufficient to support an ESU-wide recovery scenario; Production of Chinook salmon from tributaries to Puget Sound not identified as primary freshwater habitat for any of the 22 identified populations occurs in a manner consistent with ESU recovery; and
- Populations that do not meet all the Viable Salmon Population (VSP) parameters are sustained to provide ecological functions and preserve options for ESU recovery.

General Life History: Chinook salmon are anadromous fish that require well-oxygenated water that is typically less than 63º F (17º C), but some tolerance to higher temperatures is documented with acclimation. Adult Chinook salmon spawn in freshwater streams, depositing fertilized eggs in gravel "nests" called redds. The eggs incubate for three to five months before juveniles hatch and emerge from the gravel. Juveniles spend from three months to two years in freshwater before migrating to the ocean to feed and mature. Chinook salmon spend from one to six years in the ocean before returning to their natal freshwater streams where they spawn and then die.

Chinook salmon are divided into two races, stream-types and ocean-types, based on the major juvenile development strategies. Stream-type Chinook salmon tend to rear in freshwater for a year or more before entering marine waters. Conversely, ocean-type juveniles tend to leave their natal streams early during their first year of life, and rear in estuarine waters as they transition into their marine life stage. Both stream- and ocean-type Chinook salmon are present, but ocean-type Chinook salmon predominate in Puget Sound populations.

Chinook salmon are further grouped into "runs" that are based on the timing of adults that return to freshwater. Early- or spring-run chinook salmon tend to enter freshwater as immature fish, migrate far upriver, and finally spawn in the late summer and early autumn. Late- or fall-run Chinook salmon enter freshwater at an advanced stage of maturity, move rapidly to their spawning areas, and spawn within a few days or weeks. Summer-run fish show intermediate

characteristics of spring and fall runs, without the extensive delay in maturation exhibited by spring-run Chinook salmon. In Puget Sound, spring-run Chinook salmon tend to enter their natal rivers as early as March, but do not spawn until mid-August through September. Returning summer- and fall-run fish tend to enter the rivers early-June through early-September, with spawning occurring between early August and late-October.

Yearling stream-type fish tend to leave their natal rivers late winter through spring, and move relatively directly to nearshore marine areas and pocket estuaries. Out-migrating ocean-type fry tend to migrate out of their natal streams beginning in early-March. Those fish rear in the tidal delta estuaries of their natal stream for about two weeks to two months before migrating to marine nearshore areas and pocket estuaries in late May to June. Out-migrating young of the year parr tend to move relatively directly into marine nearshore areas and pocket estuaries after leaving their natal streams between late spring and the end of summer.

Table 2. Extant PS Chinook salmon populations in each biogeographic region (Ruckelshaus *et al*. 2002, NWFSC 2015).

Biogeographic Region	Population (Watershed)
Strait of Georgia	North Fork Nooksack River
	South Fork Nooksack River
Strait of Juan de Fuca	Elwha River
	Dungeness River
Hood Canal	Skokomish River
	Mid Hood Canal River
Whidbey Basin	Skykomish River
	Snoqualmie River
	North Fork Stillaguamish River
	South Fork Stillaguamish River
	Upper Skagit River
	Lower Skagit River
	Upper Sauk River
	Lower Sauk River
	Suiattle River
	Upper Cascade River
Central/South Puget Sound Basin	Cedar River
	North Lake Washington/ Sammamish River
	Green/Duwamish River
	Puyallup River
	White River
	Nisqually River

Spatial Structure and Diversity: The PS Sound Chinook salmon ESU includes all naturally spawning populations of Chinook salmon from rivers and streams flowing into Puget Sound including the Straits of Juan De Fuca from the Elwha River, eastward, including rivers and streams flowing into Hood Canal, South Sound, North Sound and the Strait of Georgia in Washington. The ESU also includes the progeny of numerous artificial propagation programs (NWFSC 2015). The PSTRT identified 22 extant populations, grouped into five major geographic regions, based on consideration of historical distribution, geographic isolation,

dispersal rates, genetic data, life history information, population dynamics, and environmental and ecological diversity. The PSTRT distributed the 22 populations among five major biogeographical regions, or major population groups (MPGs), that are based on similarities in hydrographic, biogeographic, and geologic characteristics (Table 2).

Hatchery-origin spawners are present in high fractions in most populations within the ESU, with the Whidbey Basin the only MPG with consistently high fractions of natural-origin spawners. Between 1990 and 2014, the fraction of natural-origin spawners has declined in many of the populations outside of the Skagit watershed (NWFSC 2015).

Abundance and Productivity: Available data on total abundance since 1980 indicate that abundance trends have fluctuated between positive and negative for individual populations, but productivity remains low in most populations, and hatchery-origin spawners are present in high fractions in most populations outside of the Skagit watershed. Available data now show that most populations have declined in abundance over the past 7 to 10 years. Further, escapement levels for all populations remain well below the PSTRT planning ranges for recovery, and most populations are consistently below the spawner-recruit levels identified by the PSTRT as consistent with recovery (NWFSC 2015). The current information on abundance, productivity, spatial structure and diversity suggest that the Whidbey Basin MPG is at relatively low risk of extinction. The other four MPGs are considered to be at high risk of extinction due to low abundance and productivity (NWFSC 2015). The most recent 5-year status review concluded that the ESU should remain listed as threatened (NMFS 2017).

Limiting Factors: Factors limiting recovery for PS Chinook salmon include:

- Degraded floodplain and in-river channel structure
- Degraded estuarine conditions and loss of estuarine habitat
- Riparian area degradation and loss of in-river large woody debris
- Excessive fine-grained sediment in spawning gravel
- Degraded water quality and temperature
- Degraded nearshore conditions
- Impaired passage for migrating fish
- Severely altered flow regime

PS Chinook Salmon within the Action Area: The PS Chinook salmon that occur in the action area would consist of summer run fish from the Skykomish River population, and fall run fish from the Skykomish and Snoqualmie River populations (NWFSC 2015; WDFW 2019a). Both stream- and ocean-type Chinook salmon are present in the basin, with the majority being ocean-types.

Since 1965, the estimated total abundance for returning adult PS Chinook salmon has fluctuated between about 1,200 and 7,600 in the Skykomish River basin, and about 321 and 3,600 in the Snoqualmie River basin (WDFW 2019b), with the average trend being slightly negative in both MPGs, and natural productivity in the Skykomish considered below replacement for all years since the mid-1980s (NWFSC 2015). In 2018, the total numbers of returning adults were about 3,048 and 1,162 for the Skykomish and Snoqualmie Rivers, respectively (WDFW 2019b). Since 1997, the fraction of natural-origin spawners has fluctuated between about 34 to 83 percent, and

65 to 93 percent, respectively. The 2018 fraction of natural-origin spawners was about 74 and 70 percent, respectively (WDFW 2019b).

Returning adult Chinook salmon tend to enter the Snohomish River and migrate upstream early-June through mid-October, with most spawning occurring from mid-September to mid-November. Juveniles typically migrate toward marine waters between early-March and mid-July during the first year of life, but stream-type fish may be present in the system year-round.

Critical Habitat

This section describes the status of designated critical habitat that would be affected by the proposed action by examining the condition and trends of physical or biological features (PBFs) that are essential to the conservation of the listed species throughout the designated areas. The PBFs are essential because they support one or more of the species' life stages (e.g., sites with conditions that support spawning, rearing, migration and foraging). The proposed project would affect critical habitat for PS Chinook salmon.

Puget Sound Chinook Salmon Critical Habitat: NMFS designated critical habitat for PS Chinook salmon on September 2, 2005 (70 FR 52630). That critical habitat is located in 16 freshwater subbasins and watersheds between the Dungeness/Elwha Watershed and the Nooksack Subbasin, inclusively, as well as in nearshore marine waters of the Puget Sound that are south of the US-Canada border and east of the Elwha River, and out to a depth of 30 meters. Although offshore marine is an area type identified in the final rule, it was not designated as critical habitat for PS Chinook salmon.

The PBFs of salmonid critical habitat include: (1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development; (2) Freshwater rearing sites with: (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) Water quality and forage supporting juvenile development; and (iii) Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks; (3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival; (4) Estuarine areas free of obstruction and excessive predation with: (i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and (iii) Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation; (5) Nearshore marine areas free of obstruction and excessive predation with: (i) Water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and (ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and (6) Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation. The PBF for PS Chinook salmon CH are listed in Table 3.

Table 3. Physical or biological features (PBFs) of designated critical habitat for PS Chinook salmon, and corresponding life history events. Although offshore marine areas were identified in the final rule, none was designated as critical habitat.

Physical or Biological Features		Life History Event
Site Type	**Site Attribute**	
Freshwater spawning	Water quantity Water quality Substrate	Adult spawning Embryo incubation Alevin growth and development
Freshwater rearing	Water quantity and Floodplain connectivity Water quality and Forage Natural cover	Fry emergence from gravel Fry/parr/smolt growth and development
Freshwater migration	(Free of obstruction and excessive predation) Water quantity and quality Natural cover	Adult sexual maturation Adult upstream migration and holding Kelt (steelhead) seaward migration Fry/parr/smolt growth, development, and seaward migration
Estuarine	(Free of obstruction and excessive predation) Water quality, quantity, and salinity Natural cover Forage	Adult sexual maturation and "reverse smoltification" Adult upstream migration and holding Kelt (steelhead) seaward migration Fry/parr/smolt growth, development, and seaward migration
Nearshore marine	(Free of obstruction and excessive predation) Water quality, quantity, and forage Natural cover	Adult growth and sexual maturation Adult spawning migration Nearshore juvenile rearing
Offshore marine	Water quality and forage	Adult growth and sexual maturation Adult spawning migration Subadult rearing

Major tributary river basins in the Puget Sound basin include the Nooksack, Samish, Skagit, Sauk, Stillaguamish, Snohomish, Lake Washington, Cedar, Sammamish, Green, Duwamish, Puyallup, White, Carbon, Nisqually, Deschutes, Skokomish, Duckabush, Dosewallips, Big Quilcene, Elwha, and Dungeness rivers and Soos Creek. Critical habitat throughout the Puget Sound basin has been degraded by numerous activities, including hydropower development, loss of mature riparian forests, increased sediment inputs, removal of large wood (LW) from the waterways, intense urbanization, agriculture, alteration of floodplain and stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, dredging, armoring of shorelines, marina and port development, road and railroad construction and maintenance, logging, and mining. Changes in habitat quantity, availability, and diversity, and flow, temperature, sediment load and channel instability are common limiting factors of critical habitat throughout the basin.

Land use practices have likely accelerated the frequency of landslides delivering sediment to streams. Fine sediment from unpaved roads also contributes to stream sedimentation. Unpaved roads are widespread on forested lands in the Puget Sound basin, and to a lesser extent, in rural residential areas. Historical logging removed most of the riparian trees near stream channels. Subsequent agricultural and urban conversion permanently altered riparian vegetation in the river

valleys, leaving either no trees, or a thin band of trees. The riparian zones along many agricultural areas are now dominated by alder, invasive canary grass and blackberries, and provide substantially reduced stream shade and LW recruitment (SSPS 2007).

Diking, agriculture, revetments, railroads and roads in lower stream reaches have caused significant loss of secondary channels in major valley floodplains in this region. Confined main channels create high-energy peak flows that remove smaller substrate particles and LW. The loss of side-channels, oxbow lakes, and backwater habitats has resulted in a significant loss of juvenile salmonid rearing and refuge habitat. When the water level of Lake Washington was lowered 9 feet in the 1910s, thousands of acres of wetlands along the shoreline of Lake Washington, Lake Sammamish and the Sammamish River corridor were drained and converted to agricultural and urban uses. Wetlands play an important role in hydrologic processes, as they store water which ameliorates high and low flows. The interchange of surface and groundwater in complex stream and wetland systems helps to moderate stream temperatures. Forest wetlands are estimated to have diminished by one-third in Washington State (FEMAT 1993; Spence *et al*. 1996; SSPS 2007).

Loss of riparian habitat, elevated water temperatures, elevated levels of nutrients, increased nitrogen and phosphorus, and higher levels of suspended sediment, presumably from urban and highway runoff, wastewater treatment, failing septic systems, and agriculture or livestock impacts, have been documented in many Puget Sound tributaries (SSPS 2007).

Peak stream flows have increased over time due to paving (roads and parking areas), reduced percolation through surface soils on residential and agricultural lands, simplified and extended drainage networks, loss of wetlands, and rain-on-snow events in higher elevation clear cuts (SSPS 2007). In urbanized Puget Sound, there is a strong association between land use and land cover attributes and rates of coho spawner mortality likely due to runoff containing contaminants emitted from motor vehicles (Feist *et al*. 2011).

Dams constructed for hydropower generation, irrigation, or flood control have substantially affected PS Chinook salmon populations in a number of river systems. The construction and operation of dams have blocked access to spawning and rearing habitat, changed flow patterns, resulted in elevated temperatures and stranding of juvenile migrants, and degraded downstream spawning and rearing habitat by reducing recruitment of spawning gravel and LW to downstream areas (SSPS 2007). These actions tend to promote downstream channel incision and simplification (Kondolf 1997), limiting fish habitat. Water withdrawals reduce available fish habitat and alter sediment transport. Hydropower projects often change flow rates, stranding and killing fish, and reducing aquatic invertebrate (food source) productivity (Hunter 1992).

Juvenile mortality occurs in unscreened or inadequately screened diversions. Water diversion ditches resemble side channels in which juvenile salmonids normally find refuge. When diversion headgates are shut, access back to the main channel is cut off and the channel goes dry. Mortality can also occur with inadequately screened diversions from impingement on the screen, or mutilation in pumps where gaps or oversized screen openings allow juveniles to get into the system. Blockages by dams, water diversions, and shifts in flow regime due to hydroelectric development and flood control projects are major habitat problems in many Puget Sound

tributary basins (SSPS 2007). The nearshore marine habitat has been extensively altered and armored by industrial and residential development near the mouths of many of Puget Sound's tributaries. A railroad runs along large portions of the eastern shoreline of Puget Sound, eliminating natural cover along the shore and natural recruitment of beach sand (SSPS 2007). Degradation of the near-shore environment has occurred in the southeastern areas of Hood Canal in recent years, resulting in late summer marine oxygen depletion and significant fish kills. Circulation of marine waters is naturally limited, and partially driven by freshwater runoff, which is often low in the late summer. However, human development has increased nutrient loads from failing septic systems along the shoreline, and from use of nitrate and phosphate fertilizers on lawns and farms. Shoreline residential development is widespread and dense in many places. The combination of highways and dense residential development has degraded certain physical and chemical characteristics of the near-shore environment (HCCC 2005; SSPS 2007).

Critical Habitat within the Action Area: All of Port Gardner, and upstream into the Snohomish River to Highway 2 has been designated nearshore marine critical habitat for PS Chinook salmon. Designated freshwater critical habitat for PS Chinook salmon overlaps with the nearshore marine critical habitat in the Snohomish River between Highways 529 and 2, and extends far upstream beyond Highway 2. This critical habitat primarily supports migration of both juveniles and adults (WDFW 2019a).

2.3 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). As described in Section 2.5, stormwater impacts on water quality is the only project-related stressor likely to impact PS Chinook salmon, and effects of those impacts would be undetectable beyond 1,000 feet (305 m) from the stormwater outfalls, which discharge into the central basin of the Everett Marina. To be conservative, NMFS considers that the action area includes all waters and substrates within the conjoined central and south basins of the marina. This action area overlaps with the geographic range PS Chinook salmon and their designated critical habitat. The action area also overlaps with areas that have been designated, under the MSA, as EFH for Pacific Coast Salmon, Pacific Coast groundfish, and coastal pelagic species.

2.4 Environmental Baseline

The "environmental baseline" includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

Environmental conditions at the project site and the surrounding area: The project site is located within Port Gardner, along the western shoreline of Everett, Washington (Figures 1 and 3). The geography and ecosystems in and adjacent to the action area have been heavily altered by human activity since European settlers first arrived in the 1820s. Logging camps and sawmills were

established across the area in the 1850s. Permanent non-native settlement started in the 1860s. In the late 1880s and the 1890s, large-scale waterfront development of factories, smelting plants, pulp and paper plants, saw mills, ship builders, maritime support services, marine shipping terminals, and fishing-related industry occurred. In 1901, an offshore pile jetty was built to protect the Port of Everett. Subsequent placement of rip rap and dredged materials along the pile jetty led to the creation of Jetty Island. By 1918, Everett was a thriving seaport and a formally established town (Port of Everett 2019a).

Figure 3. Google satellite photograph of the City and Port of Everett. The shipping terminals and the Naval Station are located south and east of Jetty Island. The Waterfront Place Apartments property is located east of the collocated central and south marina basins.

Currently, Everett is the 5th largest city on Puget Sound. The majority of the shoreline along Everett's western waterfront has been modified by extensive dredge and fill activity. Concrete and sheet pile bulkheads, steeply sloped riprap banks, piers, and wharves predominate along most of the shoreline. Upland of the hardened shoreline, most of the land consists of industrial yards and buildings, parking lots and roads, and previously developed vacant lots, such as the project site (Figure 3). The Port of Everett is a deep-water commercial seaport that includes eight shipping terminals, and the 3-basin, 2,300-slip Everett Marina (Port of Everett 2019a and b). The Everett Naval Station is located between the Port's shipping terminals and the marina's south basin parking lot. Construction of the south and central marina basins and their associated

facilities was done between the early 1970s and 1984. Construction of the north basin was completed in 2008.

The Port has identified six specific cleanup sites within their area of responsibility where previous waterfront activities contaminated groundwater, as well as upland and marine sediments (Port of Everett. 2019c). This includes the project site, which is the location of the former Everett Shipyard, which was in operation from 1947 through 2009. The primary contaminants found in upland and marine sediments include dioxins, furans, phenols, petroleum-based hydrocarbons including polycyclic aromatic hydrocarbons (PAHs), marine paint additives such as polychlorinated biphenyls (PCBs), 1-methylnaphthalene, tributyltin (TBT), vinyl chloride, and metals such as arsenic, copper, lead, and mercury. Port projects to remediate identified contamination at those sites are in various stages of completion, implementation, and planning. Cleanup of the former Everett Shipyard occurred between 2012 and 2015. Although, full removal of contaminated in-water sediments was prevented by obstructions next to a bulkhead, the obstructed areas were capped with clean material, and the site cleanup is considered complete (WDOE 2019a).

Several areas in and adjacent to the Port of Everett remain polluted and are identified on the Washington State Department of Ecology (WDOE) Water Quality Assessment 303d list for exceedance of criterion for numerous substances, including dioxin, PCB, butyl benzyl phthalate, and fluoranthene. The water within the central and southern basins is identified on the State's 303d list for exceedance of dioxin, and sediments within the central basin are listed for Fluoranthene & bioassay (WDOE 2019b).

The project site is located on concrete-capped fill with some residual contamination, about 160 feet inland from the vertical eastern bulkhead of the central marina basin. The presence of the contaminated fill precludes the use of stormwater infiltration at the project site. Virtually no terrestrial vegetation or natural shoreline remain at the site. Together, the co-located central and southern basins contain over 1,700 slips inside. A mix of boats and houseboats are moored at an extensive floating pier and breakwater system that includes thousands of piles, many of which are believed to be creosote-treated timber. The substrate within the marina is composed primarily of silty river sands, with a history of sediment contamination (WDOE 2019a and b). Very little aquatic vegetation is present (Hart Crowser 2017; Port of Everett 2017).

The past and ongoing anthropogenic impacts described above have reduced the action area's ability to support out-migrating juvenile PS Chinook salmon. However, the action area continues to provide migratory habitat for adult and juvenile PS Chinook salmon, and has been designated as critical habitat for this species.

Climate Change: Climate change has affected the environmental baseline of aquatic habitats across the region and within the action area. However, the effects of climate change have not been homogeneous across the region, nor are they likely to be in the future. During the last century, average air temperatures in the Pacific Northwest have increased by 1 to 1.4° F (0.6 to 0.8 °C), and up to 2° F (1.1 °C) in some seasons (based on average linear increase per decade; Abatzoglou *et al*. 2014; Kunkel *et al*. 2013). Recent temperatures in all but two years since 1998 ranked above the 20th century average (Mote *et al*. 2013). Warming is likely to continue during

the next century as average temperatures are projected to increase another 3 to 10° F (1.7 to 5.6° C), with the largest increases predicted to occur in the summer (Mote *et al*. 2014).

Decreases in summer precipitation of as much as 30% by the end of the century are consistently predicted across climate models (Mote *et al*. 2014). Precipitation is more likely to occur during October through March, less during summer months, and more winter precipitation will be rain than snow (ISAB 2007; Mote *et al*. 2013 and 2014). Earlier snowmelt will cause lower stream flows in late spring, summer, and fall, and water temperatures will be warmer (ISAB 2007; Mote *et al*. 2014). Models consistently predict increases in the frequency of severe winter precipitation events (i.e., 20-year and 50-year events), in the western United States (Dominguez *et al*. 2012). The largest increases in winter flood frequency and magnitude are predicted in mixed rain-snow watersheds (Mote *et al*. 2014).

The combined effects of increasing air temperatures and decreasing spring through fall flows are expected to cause increasing stream temperatures; in 2015, this resulted in 3.5-5.3ºC increases in Columbia Basin streams and a peak temperature of 26ºC in the Willamette (NWFSC 2015). Overall, about one-third of the current cold-water salmonid habitat in the Pacific Northwest is likely to exceed key water temperature thresholds by the end of this century (Mantua *et al*. 2009).

Higher temperatures will reduce the quality of available salmonid habitat for most freshwater life stages (ISAB 2007). Reduced flows will make it more difficult for migrating fish to pass physical and thermal obstructions, limiting their access to available habitat (Isaak *et al*. 2012; Mantua *et al*. 2010). Temperature increases shift timing of key life cycle events for salmonids and species forming the base of their aquatic foodwebs (Crozier *et al*. 2011; Tillmann and Siemann 2011; Winder and Schindler 2004). Higher stream temperatures will also cause decreases in dissolved oxygen and may also cause earlier onset of stratification and reduced mixing between layers in lakes and reservoirs, which can also result in reduced oxygen (Meyer *et al*. 1999; Raymondi *et al*. 2013; Winder and Schindler 2004). Higher temperatures are likely to cause several species to become more susceptible to parasites, disease, and higher predation rates (Crozier *et al*. 2008; Raymondi *et al*. 2013; Wainwright and Weitkamp 2013).

As more basins become rain-dominated and prone to more severe winter storms, higher winter stream flows may increase the risk that winter or spring floods in sensitive watersheds will damage spawning redds and wash away incubating eggs (Goode *et al*. 2013). Earlier peak stream flows will also alter migration timing for salmon smolts, and may flush some young salmon and steelhead from rivers to estuaries before they are physically mature, increasing stress and reducing smolt survival (Lawson *et al*. 2004; McMahon and Hartman 1989).

The adaptive ability of these threatened and endangered species is depressed due to reductions in population size, habitat quantity and diversity, and loss of behavioral and genetic variation. Without these natural sources of resilience, systematic changes in local and regional climatic conditions due to anthropogenic global climate change will likely reduce long-term viability and sustainability of populations in many of these ESUs (NWFSC 2015). New stressors generated by climate change, or existing stressors with effects that have been amplified by climate change, may also have synergistic impacts on species and ecosystems (Doney *et al*. 2012). These

conditions will possibly intensify the climate change stressors inhibiting recovery of ESA-listed species in the future.

2.5 Effects of the Action on Species and Designated Critical Habitat

Under the ESA, "effects of the action" means the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Direct effects are caused by exposure to action-related stressors that occur at the time of the action. Indirect effects are effects caused by the proposed action that occur later in time but are still reasonably certain to occur.

As described in Section 1.3, the HUD-insured loan would partially fund the construction of a 266-unit apartment complex with adjoining parking lots that would be built on 5.5 acres adjacent to the central basin of the Everett Marina. The project includes no in- or over-water construction. However, the stormwater and artificial illumination from the new apartment complex are likely to affect PS Chinook salmon and their designated critical habitat within the waters of the marina.

2.5.1 Effects on List Species

Stormwater:

Stormwater runoff from the Waterfront Place Apartments complex would adversely affect PS Chinook salmon. The new apartment complex would not increase the amount of impervious surface or increase the volume of stormwater runoff that would come from the project site. However, it would alter the chemical nature of the stormwater at the site. PS Chinook salmon in the action area may be affected directly by the stormwater through exposure to water-borne contaminants and/or indirectly through exposure to contaminated prey.

The major sources of pollutants from the new apartment complex would be vehicle-related contaminants that accumulate on road and parking lot surfaces (Mcintyre *et al*. 2015; McQueen *et al*. 2010; Peter *et al*. 2018; Spromberg *et al*. 2015), as well as contaminants that accumulate on the building rooftops (WDOE 2008, 2014). Contaminants from vegetated areas may also enter the stormwater. Accumulated contaminants become mobilized by stormwater that transports them to nearby streams and marine waters.

Vehicle-related contaminants include petroleum-based PAHs, heavy metals, and a growing list of other contaminants that are just beginning to be identified (Peter *et al*. 2018). Many common roofing materials leach metals, particularly arsenic, copper, and zinc (WDOE 2014). Rooftop structures such as air conditioners and ducting that are made of unprotected galvanized steel may also leach high levels of zinc (WDOE 2008). Additionally, roof runoff is likely to contain pollutants that accumulate through atmospheric deposition (Lye 2009). Fertilizers, herbicides, insecticides, and pet wastes may also be sources of contamination when stormwater from vegetated areas runs off instead of infiltrating.

PS Chinook salmon can uptake contaminants directly through their gills, and through dietary exposure (Karrow *et al*. 1999; Lee and Dobbs 1972; McCain *et al*. 1990; Meador *et al*. 2006; Neff 1982; Varanasi *et al*. 1993). Direct exposure to runoff-borne pollutants can cause effects in exposed fish that range from avoidance behaviors, to reduced growth, altered immune function, and immediate mortality in exposed individuals. The intensity of effects depends largely on the pollutant, its concentration, and/or the duration of exposure (Beitinger and Freeman 1983; Brette *et al*. 2014; Feist *et al*. 2011; Gobel *et al*. 2007; Incardona *et al*. 2004, 2005, and 2006; Mcintyre *et al*. 2012; Meadore *et al*. 2006; Sandahl *et al*. 2007; Spromberg *et al*. 2015).

Beitinger and Freeman (1983) report that fish possess acute chemical discrimination abilities and that very low levels of some water-borne contaminants can trigger strong avoidance behaviors. Exposure to PAHs can cause reduced growth, increased susceptibility to infection, and increased mortality in juvenile salmonids (Meador *et al*. 2006; Varanasi *et al*. 1993). Zinc can bind to fish gills and cause suffocation (WDOE 2008). In freshwater, exposure to dissolved copper at concentrations between 0.3 to 3.2 µg/L above background levels has been shown to cause avoidance of an area, to reduce salmonid olfaction, and to induce behaviors that increase juvenile salmon's vulnerability to predators (Giattina *et al*. 1982; Hecht *et al*. 2007; McIntyre *et al*. 2012; Sommers *et al*. 2016; Tierney *et al*. 2010). However, dissolved copper's olfactory toxicity in salmon diminishes quickly with increased salinity. Baldwin (2015) reports no toxicity at copper concentrations below 50 µg/L in estuarine waters with a salinity of 10 parts per thousand, and Sommers *et al*. (2016) report no copper-related impairment of olfactory function in salmon in saltwater. Acute exposure to untreated stormwater runoff from roads and bridges has been directly linked to pre-spawner die off in adult coho salmon (Mcintyre *et al*. 2015; Spromberg *et al*. 2015). However, the specific contaminants and mechanisms that cause the mortality are still not well understood. Some level of synergism between the various contaminants may be involved.

Indirect (trophic) exposure to runoff-borne pollutants can injure juvenile salmonids. Stormwater contaminants that settle to the bottom would be biologically available at the site into the foreseeable future. Amphipods and copepods uptake PAHs from contaminated sediments (Landrum and Scavia 1983; Landrum *et al*. 1984; Neff 1982), and pass them to juvenile Chinook salmon and other fish through the food web. Varanasi *et al*. (1993) found high levels of PAHs in the stomach contents of juvenile Chinook salmon in the contaminated Duwamish Waterway. They also reported reduced growth, suppressed immune competence, as well as increased mortality in juvenile Chinook salmon that was likely caused by the dietary exposure to PAHs. Meador *et al*. (2006) demonstrated that dietary exposure to PAHs caused "toxicant-induced starvation" with reduced growth and reduced lipid stores in juvenile Chinook salmon. The authors surmised that these impacts could severely impact the odds of survival in affected juvenile Chinook salmon.

The Waterfront Place Apartments' stormwater would be treated by the Port of Everett's Modular Wetland Linear System (MWLS). The MWLS would remove high levels of pollutants from the stormwater, but not all of them. The system is expected to remove about 85% of the total suspended solids (TSS); 95% of the motor oil; 50% of the total copper; 69% of the total zinc; 64% of the total phosphorus; and 45% of the nitrogen from the incoming stormwater (NMFS 2019a). However, because infiltration is not a reasonable option at the site, the stormwater with

its residual contaminants would be discharged directly into the central marina basin from outfalls that are installed along the east bulkhead.

The concentrations of the various contaminants that would remain in the effluent are unknown and likely to be highly variable depending on the timing and intensity of individual storm events. The concentrations would be positively correlated with the volume of traffic in the parking lots and the length of time between precipitation events. The highest concentrations would likely occur near the start of heavy downpour events that occur after a long dry spell that allows pollutants to build-up on road and roof surfaces, such as in early- to mid-fall. Lower concentrations would occur later in given storm and/or later in the season when precipitation events are more frequent because the build-up of pollutants would be lower. Similarly, the distance from the outfalls where the contaminants would dilute to levels too low to cause detectable direct and/or indirect effects is also unknown and expected to be highly variable.

Given the high level of treatment and the large volume of the receiving waters, it is very unlikely that apartment-attributable PAH and metal concentrations at levels high enough to cause detectable effects in juvenile salmon would extend beyond 1,000 feet from the east bulkhead (east half of the co-joined basins). Although the individual discharges from the apartment complex would be small in comparison to the flow of the nearby waterway, stormwater runoff from the site would persist for the life of the apartment complex. Further, along with other ongoing inputs of pollution in the area, it would incrementally add to the existing contaminant levels within the marina. Therefore, to be conservative, the NMFS makes the assumption that any PS Chinook salmon that enter the conjoined central and south basins may be exposed to contaminated stormwater that could be attributable to the Waterfront Place Apartments.

The annual numbers of PS Chinook salmon that may be exposed to stormwater from the apartment complex is unquantifiable with any degree of certainty, as is the intensity of any effects that an exposed individual may experience. However, the numbers are expected to be very low. There are several routes between Puget Sound and the Snohomish River Basin, most of which are much less developed than the Port Gardner Channel. Therefore, the individuals that migrate through Port Gardner likely represent relatively small subsets of their respective cohorts. Further, most returning adult Chinook salmon generally tend to swim near the center of a channel instead of along the shoreline. Therefore, it is very unlikely that any adult Chinook salmon that migrate through Port Gardner would enter the marina where they may be exposed to stormwater that would be attributable to the new apartment complex.

Out-migrating juvenile Chinook salmon in the area would still be largely shoreline-obligated, and tend to migrate along the shoreline instead of near the center of a channel. However, some of the out-migrating juveniles in Port Gardner are likely to migrate along the Jetty Island side of the channel, well away from the affected marina. Also, very few of the juveniles that migrate along the east side of the channel are likely to enter the marina. Avoidance of overwater structures (Nightingale and Simenstad 2001), boat noise (Xie *et al*. 2008), and contaminants (Beitinger and Freeman 1983) is well documented in salmon and other fish. The combination of the marina's floating breakwaters, and the presence of vessel noise and contaminants would likely deter most juveniles from entering the marina. Therefore, the annual numbers of juvenile Chinook salmon that may be exposed to apartment complex-attributable stormwater effects would represent

extremely small subsets of their respective cohorts, and the numbers of exposed fish would be too low to cause detectable population-level effects.

Artificial Lighting:

Artificial lighting from the new apartment complex is likely to adversely affect PS Chinook salmon. The 2 new 4-story tall apartment buildings and the 2 parking lots would have artificial lighting systems. HUD gave no description of the planned lighting systems. However, based on typical apartment complexes in the area, exterior security lights would likely be installed around the perimeter the new apartment buildings near the roof. Also, individual units would have windows that may transmit light, and the units may also have exterior balcony lighting. Light poles would likely be installed in numerous locations throughout the 2 parking lots. The lights and windows on the south and west sides of the buildings would cause nighttime artificial illumination toward the water in the central and south marina basins. Some parking lot light may also reach the water, but the majority of that light would likely be blocked by the apartment buildings.

In the absence of artificial illumination, juvenile Chinook salmon in lacustrine environments are typically active during the day and inactive at night. They tend to become increasingly active at dawn when light levels reach 0.8 to 2.1 lumens per square meter (Tabor and Piaskowski 2002). Nighttime artificial illumination of the water's surface attracts fish (positive phototaxis) in marine and freshwater environments, it shifts nocturnal behaviors toward more daylight-like behaviors, and it can affect light-mediated behaviors such as migration timing (Becker *et al*. 2013; Celedonia and Tabor 2015; Ina *et al*. 2017; Tabor and Piaskowski 2002; Tabor *et al*. 2017). Celedonia and Tabor (2015) found that juvenile Chinook salmon were attracted to artificially lit areas at 0.5 to 2.5 lumens per square meter, and that attraction to artificial lights can delay the onset of early morning migration of juvenile Chinook salmon by up to 25 minutes. Tabor *et al*. (2017) found that sub yearling Chinook, coho, and sockeye salmon exhibit strong nocturnal phototaxis when exposed to 5.0 to 50.0 lumens per square meter, with phototaxis positively correlated with light intensity.

NMFS recently completed a consultation for a bridge replacement project that included a lighting system designed to limit illumination of the water yet still meet roadway safety standards (NMFS 2019b). That system was predicted to illuminate the water's surface along the sides of the bridge at 1.08 lumens per square meter, which exceeds the 0.5 lumen per square meter level where phototaxis has been documented in Chinook salmon (Celedonia and Tabor 2015).

In the absence of any information from HUD to indicate that the project would include reduced intensity lighting, the NMFS expects that the new apartment complex would install lighting systems similar to other apartment complexes, and that the overwater illumination caused by the new lighting systems are likely to exceed the threshold where the onset of daylight activities and phototaxis would occur, and that the illumination would extend to tens of feet over the water beyond the central basin's east bulkhead and south into the south basin.

It is uncertain to what degree the new light would be detectable above background levels, or what additive effects the new lighting would have when considered with existing conditions and the other new development being done next to the marina. However, based on the best available information and on the need to be protective of the listed fish, the NMFS estimates that any juvenile Chinook salmon that are within 100 feet of the bulkheads adjacent to the project site may experience some level of nocturnal phototaxis, and may experience other altered behaviors, such as delayed departure from the area, which would prolong their exposure to adverse habitat conditions created by boat operations and poor water quality in the marina. The intensity of this effect would increase with proximity to the project site. Over the life of the new apartments, it is likely that a small subset of the exposed individuals would experience reduced fitness and/or altered behaviors that could reduce their overall likelihood of survival.

The annual numbers of PS Chinook salmon that may be exposed to artificial lighting that would be attributable to the apartment complex is unquantifiable with any degree of certainty, as is the intensity of any effects that an exposed individual may experience. However, for the same reasons expressed above for exposure to stormwater effects, the annual numbers of juvenile Chinook salmon that may be exposed to artificial lighting that would be attributable to the apartment complex would represent extremely small subsets of their respective cohorts, and the numbers of exposed fish would be too low to cause detectable population-level effects.

2.5.2 Effects on Critical Habitat

This assessment considers the intensity of expected effects in terms of the change they would cause in affected Primary Biological Features (PBFs) from their baseline conditions, and the severity of each effect, considered in terms of the time required to recover from the effect. Ephemeral effects are those that are likely to last for hours or days, short-term effects would likely last for weeks, and long-term effects are likely to last for months, years or decades.

Puget Sound Chinook Salmon Critical Habitat: The proposed action is likely to adversely affect designated critical habitat for PS Chinook salmon. The essential PBFs of PS Chinook salmon critical habitat are listed below. The expected effects on those PBFs from completion of the planned project, including full application of the conservation measures and best management practices (BMPs), would be limited to the impacts on the PBFs of estuarine and nearshore marine areas free of obstruction and excessive predation as described below.

1. Freshwater spawning sites – None in the action area.
2. Freshwater rearing sites – None in the action area.
3. Freshwater migration corridors – None in the action area.
4. Estuarine areas free of obstruction and excessive predation:
    a. Free of obstruction and excessive predation – The proposed action would cause long-term minor effects on this PBF. Over the life of the new apartments, the new apartment complex would slightly increase nighttime artificial illumination of marina waters within about 100 feet of the bulkheads nearest to the new apartment buildings. Phototaxis toward the light may draw juvenile Chinook salmon deeper into the marina, and may delay the resumption of morning migration by up to 25 minutes. The action is expected to have no effect on predation.

b. Water quality – The proposed action would cause long-term minor effects on this PBF. Over the life of the new apartments, treated stormwater from the apartment complex would discharge residual levels of petroleum-based pollutants, metals, and other contaminants into the central marina basin. The area of affect would likely be limited to the central and south marina basins within 1,000 feet of the stormwater outfalls along the east bulkhead. The action would cause no measurable changes in water temperature.
c. Water quantity – The proposed action would cause no effect on water quantity.
d. Salinity – The proposed action would cause no effect on salinity.
e. Natural Cover – The proposed action would cause no effect on natural cover.
f. Forage – The proposed action would cause long-term minor effects on forage. Over the life of the new apartments, treated stormwater from the apartment complex would provide a persistent source of contaminants that could be taken up by benthic invertebrates that are forage resources for juvenile Chinook salmon. The area of affect would likely be limited to the central and south marina basins within 1,000 feet of the stormwater outfalls along the east bulkhead. The action would not affect forage fish spawning habitat.

5. Nearshore marine areas:
   a. Free of obstruction and excessive predation – Same as above.
   b. Water quality – Same as above.
   c. Water quantity – Same as above.
   d. Forage – Same as above.
   e. Natural Cover – Same as above.
6. Offshore marine areas – None in the action area.

2.6 Cumulative Effects

Cumulative effects are those effects of future state or private activities, not involving Federal activities that are reasonably certain to occur within the action area of the Federal action subject to the consultation (50 CFR 402.02). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Some continuing non-Federal activities are reasonably certain to contribute to climate effects within the action area. However, it is difficult if not impossible to distinguish between the action area's future environmental conditions caused by global climate change that are properly part of the environmental baseline *vs.* cumulative effects. Therefore, all relevant future climate-related environmental conditions in the action area are described in the Environmental Baseline section (Section 2.4).

The current condition of ESA-listed species and designated critical habitat within the action area are described in the Status of the Species and Critical Habitat and the Environmental Baseline sections above. The contribution of non-federal activities to those conditions include past and on-going bankside development in the action area, as well as upstream forest management, agriculture, urbanization, road construction, water development, and restoration activities. Those actions were driven by a combination of economic conditions that characterized traditional natural resource-based industries, general resource demands associated with settlement of local

and regional population centers, and the efforts of conservation groups dedicated to restoration and use of natural amenities, such as cultural inspiration and recreational experiences.

Virtually the entire 65 acres of upland area between the north and central marina basins is undergoing redevelopment as part of the Port of Everett's Waterfront Place Central redevelopment project. With the exception of the action considered in this Opinion, the NMFS is unaware of any Waterfront Place Central project components that include federal involvement. When complete, the redevelopment would include about 394 new residences (in addition to the 266 apartment units described earlier), a 142-room waterfront hotel, 7 restaurants, numerous office and retail spaces, waterfront walkways and entertainment venues, and parking for about 3,200 vehicles (Port of Everett 2019d). Although the Port of Everett is likely to install advanced stormwater treatment systems for the Waterfront Place Central redevelopment project, the stormwater runoff and increased artificial lighting from the adjacent developments would cause impacts on the marine resources within the action area that would be similar to those described earlier, albeit on a larger scale.

Additionally, the NMFS is reasonably certain that other future non-federal shoreline and upstream activities are all likely to continue and increase in the future as the human population continues to grow across the region. Continued habitat loss and degradation of water quality from upstream development and chronic low-level inputs of non-point source pollutants will likely continue into the future.

The intensity of these influences depends on many social and economic factors, and therefore is difficult to predict. Further, the adoption of more environmentally acceptable practices and standards may gradually reduce some negative environmental impacts over time. Interest in restoration activities has increased as environmental awareness rises among the public. State, tribal, and local governments have developed plans and initiatives to benefit ESA-listed PS Chinook salmon within many of the watersheds that flow into the action area. However, the implementation of plans, initiatives, and specific restoration projects are often subject to political, legislative, and fiscal challenges that increase the uncertainty of their success.

2.7 Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the species and critical habitat (section 2.2), to formulate the agency's biological opinion as to whether the proposed action is likely to: (1) appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing its numbers, reproduction, or distribution; or (2) appreciably diminish the value of designated or proposed critical habitat for the conservation of the species.

As described in more detail above at Section 2.4, climate change is likely to increasingly affect the abundance and distribution of the ESA-listed species considered in the Opinion. It is also likely to increasingly affect the PBFs of designated critical habitats. The exact effects of climate change are both uncertain, and unlikely to be spatially homogeneous. However, climate change

is reasonably likely to cause reduced instream flows in some systems, and may impact water quality through elevated in-stream water temperatures and reduced dissolved oxygen, as well as by causing more frequent and more intense flooding events.

Climate change may also impact coastal waters through elevated surface water temperature, increased and variable acidity, increasing storm frequency and magnitude, and rising sea levels. The adaptive ability of listed-species is uncertain, but is likely reduced due to reductions in population size, habitat quantity and diversity, and loss of behavioral and genetic variation. The proposed action will cause direct and indirect effects on the ESA-listed species and critical habitats considered in the Opinion well into the foreseeable future. However, the action's effects on water quality, substrate, and the biological environment are expected to be of such a small scale that no detectable effects on ESA-listed species or critical habitat through synergistic interactions with the impacts of climate change are expected.

2.7.1 ESA-listed Species

PS Chinook salmon are listed as threatened, based on declines from historic levels of abundance and productivity, loss of spatial structure and diversity, and an array of limiting factors as a baseline habitat condition. Both species will be affected over time by cumulative effects, some positive – as recovery plan implementation and regulatory revisions increase habitat protections and restoration, and some negative – as climate change and unregulated or difficult to regulate sources of environmental degradation persist or increase. Overall, to the degree that habitat trends are negative, as described below, effects on viability parameters of each species are also likely to be negative. In this context we consider the effects of the proposed action's effect on individuals of the listed species at the population scale.

PS Chinook salmon

The long-term abundance trend of the PS Chinook salmon ESU is slightly negative. The PS Chinook salmon in the action areas are summer and fall run fish from the Skykomish River population, and fall run fish from the Snohomish River population. Both populations have slightly negative general trends, and a relatively large proportion of both populations' spawners are hatchery-origin fish. Reduced or eliminated accessibility to historically important habitat, combined with degraded conditions in available habitat due to land use activities appear to be the greatest threats to the recovery of PS Chinook salmon. Commercial and recreational fisheries also continue to impact this species.

The project site is located within Port Gardner, along the western shoreline of Everett, Washington, which provides one of several routes to and from marine waters for adults and juveniles of the Skykomish and Snohomish River PS Chinook salmon populations. The environmental baseline within the action area has been degraded by the effects of intense streambank and shoreline development and by industrial and maritime activities. The baseline has also been degraded by upstream industry, urbanization, agriculture, forestry, water diversion, and road building and maintenance.

There would be no project-related in-water work that would affect Chinook salmon. However, over the life of the new apartment complex, out-migrating juveniles that enter the central and south marina basins are likely to be exposed to reduced water quality, contaminated forage, and altered lighting conditions as a result of this action. These stressors, both individually and collectively, are likely to cause a range of effects that would include some combination of altered behaviors, reduced fitness, and increased mortality in exposed individuals.

The annual number of juveniles that are likely to be injured or killed by exposure to action-related stressors is unknown, but is expected to be very low. Based on the best available information, the scale of the effects of the proposed action, when considered in combination with the degraded baseline, cumulative effects, and the impacts of climate change, would be too small to cause detectable effects on any of the characteristics of a viable salmon population (abundance, productivity, distribution, or genetic diversity) for the affected PS Chinook salmon populations. Therefore, the proposed action would not appreciably reduce the likelihood of survival and recovery of this listed species.

2.7.2 Critical Habitat

As described above at Section 2.5, the proposed action is likely to adversely affect designated critical habitat for PS Chinook salmon.

Chinook salmon critical habitat

Past and ongoing land and water use practices have degraded salmonid critical habitat throughout the Puget Sound basin. Hydropower and water management activities have reduced or eliminated access to significant portions of historic spawning habitat. Timber harvests, agriculture, industry, urbanization, and shoreline development have adversely altered floodplain and stream morphology in many watersheds, diminished the availability and quality of estuarine and nearshore marine habitats, and reduced water quality across the region.

Global climate change is expected to increase in-stream water temperatures and alter stream flows, possibly exacerbating impacts on baseline conditions in freshwater habitats across the region. Rising sea levels are expected to increase coastal erosion and alter the composition of nearshore habitats, which could further reduce the availability and quality of estuarine habitats. Increased ocean acidification may also reduce the quality of estuarine habitats.

In the future, non-federal land and water use practices and climate change are likely to increase. The intensity of those influences on salmonid critical habitat is uncertain, as is the degree to which those impacts may be tempered by adoption of more environmentally acceptable land use practices, by the implementation of non-federal plans that are intended to benefit salmonids, and by efforts to address the effects of climate change.

The PBFs for PS Chinook salmon critical habitat in the action area are limited to estuarine and nearshore marine areas free of obstruction and excessive predation. The site attributes of that PBF that would be affected by the action are limited to freedom from obstruction and excessive predation, water quality, and forage. As described above, the project site is located along a

heavily impacted waterway, and all of these site attributes currently function at greatly reduced levels as compared to undisturbed habitat. The long-term presence of the applicant's new apartment complex with its interrelated activities would cause long term effects on the site attributes identified above.

Based on the best available information, the scale of the proposed action's effects, when considered in combination with the degraded baseline, cumulative effects, and the impacts of climate change, would be too small to cause any detectable long-term negative changes in the quality or functionality of the estuarine and nearshore marine areas free of obstruction and excessive predation PBFs in the action area. Therefore, this critical habitat will maintain its current level of functionality, and retain its current ability for PBFs to become functionally established, to serve the intended conservation role for PS Chinook salmon.

2.8 Conclusion

After reviewing and analyzing the current status of the listed species, the environmental baseline within the action area, the effects of the proposed action, any effects of interrelated and interdependent actions, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of PS Chinook salmon, nor is it likely to destroy or adversely modify designated critical habitat for this species.

2.9 Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined by regulation to include significant habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this incidental take statement (ITS).

2.9.1 Amount or Extent of Take

The NMFS determined that incidental take is reasonably certain to occur as follows:

Harm of PS Chinook salmon from exposure to:

- stormwater-related degraded water quality,
- stormwater-related contaminated forage, and
- structure-related altered lighting,

The NMFS cannot predict with meaningful accuracy the number of PS Chinook salmon are reasonably certain to be injured or killed annually by exposure to any of these stressors. The distribution and abundance of the fish that occur within an action area are affected by habitat quality, competition, predation, and the interaction of processes that influence genetic, population, and environmental characteristics. These biotic and environmental processes interact in ways that may be random or directional, and may operate across far broader temporal and spatial scales than are affected by the proposed action. Thus, the distribution and abundance of fish within the action area cannot be attributed entirely to habitat conditions, nor can NMFS precisely predict the number of fish that are reasonably certain to be injured or killed if their habitat is modified or degraded by the proposed action.

Additionally, the NMFS knows of no device or practicable technique that would yield reliable counts of individuals that may experience these impacts. In such circumstances, NMFS uses the causal link established between the activity and the likely extent and duration of changes in habitat conditions to describe the extent of take as a numerical level of habitat disturbance.

The most appropriate surrogates for take are action-related parameters that are directly related to the magnitude of the expected take. The best available surrogates for the extent of take of juvenile PS Chinook salmon from exposure to stormwater-related degraded water quality and contaminated forage are the size of the applicant's apartment complex, and the design of the stormwater treatment system. The best available surrogates for the extent of take of juvenile PS Chinook salmon from exposure to altered lighting are the size and configuration of the applicant's apartment complex.

The size the applicant's apartment complex is appropriate because the volume of stormwater would be directly related to the amount of impervious area (i.e. sizes of parking lots, roadways, and rooftops). Also, the amount of traffic-related contaminants in the stormwater would be directly related to the number of vehicles that would use the roads and parking lots, which is directly related to the number of apartments and the sizes of the parking lots. Any increase in the volume of contaminated stormwater or in the concentration of the contaminants within it would increase in the amount of contaminants that enter the basin. The design of the stormwater treatment system is an appropriate surrogate because the concentration of contaminants that would remain in post-treatment stormwater is directly related to the system's level of contaminant removal, and to the system's ability to manage flows before bypass of treatment occurs. Lower levels of contaminant removal and/or bypass of the filter system at lower flow levels would also increase the amount of contaminants that enter the marina basin. Any increase in the amount of contaminants that enter the marina basin could increase the number of individuals that would be exposed to them and/or increase the intensity of the impacts from the exposure (directly or through the trophic web).

The size and configuration of the applicant's apartment complex are best available surrogates for the extent of take of juvenile PS Chinook salmon from exposure to altered lighting for a number of reasons. Increasing the size of the apartment buildings is likely to increase the number of lights, which is likely to increase the intensity of the in-water illumination. Constructing the buildings closer to the water or installing the parking lots west of the buildings may also increase the intensity of the in-water illumination. Increasing the intensity of the in-water illumination

would increase the intensity of phototaxis in exposed individuals. Increasing the height of the buildings is likley to increase the distance over the water that the light would extend, which may increase the number of individuals that are exposed.

In summary, the extent of take for this action is defined as:

Puget Sound Chinook salmon:

- The size and configuration of the new apartment complex, as described in the proposed action section of this biological opinion; and
- The discharge of stormwater through a stormwater management system, as described in the proposed action section of this biological opinion.

Exceedance of any of the exposure limits described above would constitute an exceedance of authorized take that would trigger the need to reinitiate consultation.

2.9.2 Effect of the Take

In the Opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to jeopardize the continued existence of PS Chinook salmon, nor is it likely to destroy or adversely modify designated critical habitat for PS Chinook salmon (Section 2.8).

2.9.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" (RPMs) are nondiscretionary measures to minimize the amount or extent of incidental take (50 CFR 402.02).

The HUD shall require the applicant to:

1. Implement monitoring and reporting to confirm that the take exemption for the proposed action is not exceeded.

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary. The HUD or any applicant must comply with them in order to implement the RPM (50 CFR 402.14). The HUD or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. To implement RPM Number 1, implement a monitoring and reporting program to confirm that the take exemption for the proposed action is not exceeded, the HUD shall:
    a. Require the applicant to verify that the specific stormwater treatment system that their project would tie into meets or exceeds the conditions described in this biological opinion. Minimally, the applicant shall:

i. Provide to HUD documentation that indicates the specific stormwater treatment system that their project would tie into;
ii. Provide to HUD copies of the manufacture's documentation of removal efficiencies for the installed system; and
iii. Provide to HUD verification of the system's capability to treat stormwater from the project site, combined with any other areas that tie into the same system, at storm intensities up to 100-year events.

b. Require their contract inspector to make periodic site visits and to complete and submit construction progress report forms (HUD Form#95379) to verify that the size and configuration of the apartment complex does not exceed the conditions described in this biological opinion. Minimally, the HUD inspector shall provide:
   i. Documentation that the apartment buildings are constructed within the footprint indicated in the project drawings;
   ii. Documentation that the buildings are no more than 4-stories tall; and
   iii. Documentation that no more than 266 apartment units are created.
c. Require the applicant and the HUD contract inspector to submit the construction progress report forms and other materials to the appropriate HUD office; and
d. HUD shall submit an electronic post-construction report to NMFS within six months of project completion. Send the report to: projectreports.wcr@noaa.gov. Be sure to include Attn: WCRO-2019-00655 in the subject line.

2.10 Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

1. The HUD should require that no coal-tar type pavements be used at the site.
2. The HUD should require the applicant to develop and implement a long-term source-control plan for the apartment complex to reduce the amount of contaminants in stormwater. The plan should include the following measures:
   a. The required painting or coating of all galvanized metal with non-toxic paint or sealant;
   b. The prohibition of automobile maintenance activities in the parking lots;
   c. The provision and regular emptying of trash receptacles in the parking lots;
   d. The required periodic inspection and cleaning of spilled oils in the parking lots; and
   e. The required periodic street sweeping/vacuuming of the parking lots.
3. The HUD should require the applicant to install lighting systems that are designed to meet safety needs while minimizing nighttime illumination of the adjacent marina waters. Suggested measures include:
   a. Install shielding for all elevated light fixtures;
   b. Aim all elevated light fixtures in a manner that prevents over-water illumination; and
   c. Install low-intensity lights.

2.11 Reinitiation of Consultation

This concludes formal consultation for the U.S. Department of Housing and Urban Development's issuance of Section 220 loan insurance for the construction of the Waterfront Place Apartments in, Everett, Snohomish County, Washington. As 50 CFR 402.16 states, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitats in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitats that was not considered in this Opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action.

2.12 Not Likely to Adversely Affect Determinations

This concurrence was prepared pursuant to section 7(a)(2) of the ESA, implementing regulations at 50 CFR 402 and agency guidance for preparation of letters of concurrence. Refer to the opinion for a description of the proposed action and action area.

Our concurrence with the HUD's determination that the proposed action is not likely to adversely affect PS steelhead, PS/Georgia Basin (PS/GB) bocaccio, PS/GB yelloweye rockfish, southern resident (SR) killer whales, and designated critical habitat for those species follows. Detailed information on the biology, habitat, and conservation status and trend of these listed resources can be found in the recovery plans and other sources at: http://www.nmfs.noaa.gov/pr/species/fish/, http://www.nmfs.noaa.gov/pr/species/mammals/, and in the listing regulations and critical habitat designations published in the Federal Register. That information is incorporated here by reference.

The applicable standard to find that a proposed action is not likely to adversely affect listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur.

As described above in Section 2.5, the proposed action may affect listed species and/or critical habitat features through post-construction stormwater runoff and artificial illumination from a new apartment complex that would be constructed about 160 feet inland from the central basin of the Everett Marina. For simplicity, this section relies heavily on the effects analysis in Section 2.5. As described in that section, action-related stressors would cause no measurable effects beyond the boundaries of the collocated central and south basins of the Everett Marina.

2.12.1 Effects on Listed Species

Given the location of the project site and the resulting area of effect relative to the location of habitats likely to be occupied by PS/GB bocaccio, PS/GB yelloweye rockfish, and SR killer

whales, it is extremely unlikely that any individuals of those species would be present within the Port Gardner Channel or the action area.

Although some PS steelhead are likely to migrate through the Port Gardner Channel, juvenile steelhead tend to be relatively large and independent of shallow nearshore areas when they leave their natal rivers (Bax *et al*. 1978, Brennan *et al*. 2004, Schreiner *et al*. 1977), and they typically migrate to the Strait of Juan de Fuca very quickly (Moore *et al*. 2010). They are very unlikely to enter the marina basins as they migrate through the channel. Similarly, returning adult steelhead are most likely to migrate past the site very quickly and near the center of the channel. Therefore, both life stages are very unlikely to enter the action area.

Therefore, the action's post-construction stormwater runoff and artificial illumination are not likely to adversely affect any of these species. Further, as described in section 2.5, the proposed action would cause no population-level effects on Chinook salmon, which is the main prey resource for SR killer whales. Therefore, the project is not likely to cause measurable trophic effects on these whales.

2.12.2 Effects on Critical Habitat

This assessment considers the intensity of expected effects in terms of the change they would cause in affected PBFs from their baseline conditions, and the severity of each effect, considered in terms of the time required to recover from the effect. Ephemeral effects are those that are likely to last for hours or days, short-term effects would likely to last for weeks, and long-term effects are likely to last for months, years or decades.

The action area overlaps with no designated critical habitat for PS steelhead, PS/GB bocaccio, PS/GB yelloweye rockfish, and SR killer whales. With the possible exception of potential impacts on SR killer whale prey through impacts on PS Chinook salmon, the action is extremely unlikely to cause any detectable effects on the designated critical habitat for any of these species. However, as described above, the proposed action would cause no detectable reduction in prey availability for SR killer whales.

For the reasons expressed immediately above, NMFS has determined that the proposed action is not likely to adversely affect PS steelhead, PS/GB bocaccio, PS/GB yelloweye rockfish, SR killer whales, and their designated critical habitats.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT CONSULTATION

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect essential fish habitat (EFH). The MSA (section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other

ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. This analysis is based, in part, on the description of EFH for Pacific Coast salmon contained in the fishery management plans developed by the Pacific Fishery Management Council (PFMC 2014) and approved by the Secretary of Commerce.

3.1 Essential Fish Habitat Affected by the Project

The proposed action and action area for this consultation are described in section 1 of this document. The action area includes areas designated as EFH for various life-history stages of Pacific Coast Salmon, Pacific Coast Groundfish, and Coastal Pelagic Species. The PFMC described and identified EFH for Pacific coast groundfish (PFMC 2005), Pacific salmon (PFMC 2014), and coastal pelagic species (PFMC 1998). In addition, the action area is within habitat area of particular concern (HAPC) for estuarine habitat.

3.2 Adverse Effects on Essential Fish Habitat

The ESA portion of this document describes the adverse effects of this proposed action on ESA-listed species and critical habitat, and is relevant to the effects on EFH for Pacific Coast Salmon, Pacific Coast Groundfish, and Coastal Pelagic Species. Based on the analysis of effects presented in Section 2.5 the proposed action will cause very small scale adverse effects on this EFH through post-construction stormwater runoff and artificial illumination that may cause direct or indirect physical, chemical, or biological alteration of the water, substrate, and benthic communities within the action area. Therefore, we have determined that the proposed action would adversely affect the EFH identified above.

3.3 Essential Fish Habitat Conservation Recommendations

The proposed action includes the discharge of action-related stormwater through a preexisting filter-media stormwater treatment system to reduce impacts on the quantity and quality of EFH. However, NMFS believes that implementation of the following conservation recommendations would further reduce and/or avoid adverse effects on EFH for Pacific Coast Salmon, Pacific Coast Groundfish, and Coastal Pelagic Species that are likely to result from the proposed action.

1. The HUD should require that no coal-tar type pavements be used at the site.
2. The HUD should require the applicant to develop and implement a long-term source-control plan for the apartment complex to reduce the amount of contaminants in stormwater. The plan should include the following measures:
    a. The required painting or coating of all galvanized metal with non-toxic paint or sealant;
    b. The prohibition of automobile maintenance activities in the parking lots;
    c. The provision and regular emptying of trash receptacles in the parking lots;
    d. The required periodic inspection and cleaning of spilled oils in the parking lots; and
    e. The required periodic street sweeping/vacuuming of the parking lots.

3. The HUD should require the applicant to install lighting systems that are designed to meet safety needs while minimizing nighttime illumination of the adjacent marina waters. Suggested measures include:
   a. Install shielding for all elevated light fixtures;
   b. Aim all elevated light fixtures in a manner that prevents over-water illumination; and
   c. Install low-intensity lights.

3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the HUD must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the Federal agency have agreed to use alternative time frames for the Federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

3.5 Supplemental Consultation

The HUD must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920(l)).

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The Data Quality Act (DQA) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these DQA components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

4.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended user of this Opinion is the HUD.

Other users could include the Port of Everett, WDFW, the government and citizens of Snohomish County and the City of Everett, and Native American tribes. Individual copies of this Opinion were provided to the HUD. The format and naming adheres to conventional standards for style.

4.2 Integrity

This consultation was completed on a computer system managed by the NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

4.3 Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this Opinion and EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

5. REFERENCES

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