



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, Washington 98115

Refer to NMFS Tracking  
No.: 2007/04893

March 18, 2008

Michelle Walker  
U.S. Army Corps of Engineers, Seattle District  
Regulatory Branch CENWS-OD-RG  
Post Office Box 3755  
Seattle, Washington 98124-3755

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens  
Fishery Conservation and Management Act Essential Fish Habitat Consultation for  
the Pier, Boathouse, and Bulkhead Replacement, Sixth Field HUC 171100120301  
(Lake Washington, Lower Sammamish River), King County, Washington

Dear Ms. Walker:

The enclosed document contains a biological opinion prepared by the National Marine Fisheries Service pursuant to section 7(a)(2) of the Endangered Species Act on the effects of the construction of a replacement bulkhead, pier, and boathouse. In this biological opinion, National Marine Fisheries Service concludes that the action, as proposed, is not likely to jeopardize the continued existence of Puget Sound Chinook and steelhead, and "may affect, is not likely to adversely affect" designated critical habitat for Puget Sound Chinook.

As required by section 7 of the Endangered Species Act, National Marine Fisheries Service provided an incidental take statement with the biological opinion. The incidental take statement describes reasonable and prudent measures National Marine Fisheries Service considers necessary or appropriate to minimize incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the Federal agency and any person who performs the action must comply with to carry out the reasonable and prudent measures. Incidental take from actions that meet these terms and conditions will be exempt from the Endangered Species Act take prohibition.

This document also includes the results of our analysis of the action's likely effects on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), includes a conservation recommendation to avoid, minimize, or otherwise offset potential adverse effects on essential fish habitat. This Conservation Recommendation is identical set on the Endangered Species Act



Terms and Conditions. Section 305(b)(4)(B) of the MSA required Federal agencies to provide a detailed written response to National Marine Fisheries Service within 30-days after receiving these recommendations. If the response is inconsistent with the recommendations, the action agency must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall essential fish habitat program effectiveness by the White House Office of management and Budget, established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each essential fish habitat consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the essential fish habitat portion of this consultation, we ask that you clearly identify the number of conservation recommendations accepted.

If you have questions regarding this consultation, please contact Brianna Blaud at (206) 526-4749 or [brianna.blaud@noaa.gov](mailto:brianna.blaud@noaa.gov).

Sincerely,



for

D. Robert Lohn  
Regional Administrator

Enclosure

cc: Susan Powell, COE  
David Douglas, Waterfront Construction Co.  
Karen Myers, USFWS  
Andre Radandt, Applicant

Endangered Species Act – Section 7  
Consultation  
Biological Opinion

and

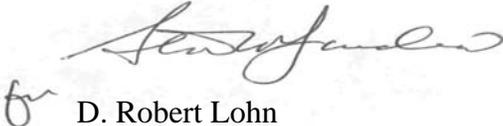
Magnuson-Stevens Fishery Conservation and  
Management Act  
Essential Fish Habitat Consultation

Radandt Pier, Boathouse, and Bulkhead Replacement in Lake Washington  
Sixth Field HUC code 171100120301, (Lake Washington, Lower Sammamish River)  
King County, Washington

Lead Action Agency: U.S. Army Corps of Engineers

Consultation  
Conducted By: National Marine Fisheries Service  
Northwest Region

Date Issued: March 18, 2008

Issued by:   
D. Robert Lohn  
Regional Administrator

NMFS Tracking No.: 2007/04893

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## **INTRODUCTION**

The Biological Opinion (Opinion) and incidental take statement portions of this consultation were prepared by the National Marine Fisheries Service (NMFS) in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531, et seq.), and implementing regulations at 50 CFR 402. With respect to designated critical habitat, the following analysis relied only on the statutory provisions of the ESA, and not on the regulatory definition of “destruction or adverse modification” at 50 CFR 402.02.

The Essential Fish Habitat (EFH) consultation was prepared 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. The administrative record for this consultation is on file at the Washington State Habitat Office in Lacey, Washington.

### **Background and Consultation History**

On July 25, 2007, NMFS received a letter from the U.S. Army Corps of Engineers (COE) requesting consultation under Section 10 of the Rivers and Harbors Act of 1898 and Section 404 of the Clean Water Act to authorize the replacement of a pier, bulkhead, and boathouse in Lake Washington by Andre Radandt (applicant), in King County, Washington. The COE determined the proposed action “may affect, but is not likely to adversely affect” Puget Sound Chinook (PS Chinook), Puget Sound steelhead, and PS Chinook critical habitat. After reviewing the consultation, NMFS determined that the acts may adversely affect the listed species and critical habitat, and initiated a formal consultation.

### **Proposed Action**

The proposed action is issuance of a permit by the COE under section 10 of the Rivers and Harbors Act of 1898 and Section 404 of the Clean Water Act to authorize the replacement of an existing pier, bulkhead, and boathouse by Andre Radandt (applicant), in King County, Washington.

Approximately 804 linear feet of existing bulkhead will be removed from the Ordinary High Water Line (OHWL). Three beach coves will be created for a total of 187 linear feet along the shoreline. The riprap bulkhead will be replaced within the OHWL along 617 linear feet of shoreline and will extend three feet above OHWL. Five hundred cubic yards of beach gravel will be placed along the 617 foot bulkhead and waterward about 12 feet. Water depth at the base of the bulkhead outside of the three coves is expected to be about one foot from the OHWL after the addition of the beach gravel.

The 1,795 foot overwater pier and boathouse will be removed and a new pier will be built at a new location on the property. The existing overwater pier is 1,091 square feet and the existing overwater boathouse is 704 square feet. Forty-four treated pilings and all

skirting from the pier will be removed. The new 924 square foot pier will be built to the north of the existing pier and includes an additional 448 square foot moorage cover over the boat slip. The bottom of the new pier will be 18 inches above the OHWL. The main walkway to the boat slip will be 5 feet wide and fully grated. The walkway surrounding the boat slip will be 5 feet wide and 4 feet wide respectively and are not proposed to be grated. An opaque roof without sides will cover the slip and replace the existing boathouse. Depth at the end of the pier is 8 feet deep. The pier will be supported by eighteen 6 or 8 inch steel pilings. Two free-standing boatlifts will be installed near the pier, one inside the slip and one alongside the shortest finger pier.

To minimize the effects of the overwater structures and replaced bulkhead, the applicant proposes an extensive planting plan composed of native vegetation. About 2,000 square feet of plantings, mainly small shrubs, will be installed. The site currently has many large conifers growing on it. The plantings include one shore pine (*Pinus contorta*), one big-leaf maple (*Acer macrophyllum*), three western dogwood (*Corus nuttallii*) and one Sitka willow (*Salix sitchensis*).

### **Action Area**

The action area is limited to the immediate vicinity of the construction site at 4450 Hunts Point Road in Hunts Point.

## **ENDANGERED SPECIES ACT**

The ESA establishes a national program to conserve threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with U.S. Fish and Wildlife Service, NMFS, or both, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitats. Section 7(b)(4) requires the provision of an incidental take statement that specifies the impact of any incidental taking and includes reasonable and prudent measures to minimize such impacts.

### **Biological Opinion**

This Opinion presents NMFS' review of the status of each listed species of Pacific salmon and steelhead<sup>1</sup> considered in this consultation, the condition of designated critical habitat, the environmental baseline for the action area, all the effects of the action as proposed, and cumulative effects (50 CRF 402.14(g)). For the jeopardy analysis, NMFS analyzes those combined factors to conclude whether the proposed action is likely to appreciably reduce the likelihood of both the survival and recovery of the affected listed species.

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<sup>1</sup> An 'evolutionarily significant unit' (ESU) of Pacific salmon (Waples 1991) and a 'distinct population segment' (DPS) of steelhead (final steelhead FR notice) are considered to be 'species,' as defined in Section 3 of the ESA.

The critical habitat analysis determines whether the proposed action will destroy or adversely modify designated critical habitat for listed species by examining any change in the conservation value of that critical habitat. This analysis relies on statutory provisions of the ESA, including those in section 3 that define “critical habitat” and “conservation,” in section 4 that describe the designation process, and in section 7 that sets forth the substantive protections and procedural aspects of consultation, and on agency guidance for application of the “destruction or adverse modification” standard.

### Status of Species

This section defines the biological requirements of each listed species affected by the proposed action, and the status of each designated critical habitat relative to those requirements. Listed species facing a high risk of extinction and critical habitats with degraded conservation value are more vulnerable to the aggregation of effects considered under the environmental baseline, the effects of the proposed action, and cumulative effects.

#### *Puget Sound Chinook*

NMFS listed PS Chinook salmon as threatened (March 1999, 64 FR 14308). The PS Chinook Evolutionarily Significant Unit (ESU) has been defined to include all PS Chinook populations residing below impassable natural barriers (e.g., long-standing natural water falls) in the Puget Sound region from the Nooksack River to the Elwha River on the Olympic Peninsula, inclusive. The status of individual populations within Puget Sound is assessed based on their abundance, productivity, diversity, and spatial structure.

Overall abundance of this ESU has declined substantially from historical levels, and many populations are small enough that genetic and demographic risks are likely to be relatively high (March 9, 1998, 63 FR 11494). Historic abundance has been estimated to be approximately 609,000 adult returns (Myers et al. 1998), while average present day (1998-2002) abundance of natural origin spawners is 30,182 fish (NMFS 2005a). NMFS (2005b) listed approximately 331 geometric mean spawners in North Lake Washington population and 327 in the Cedar River population, and no estimates of historical abundance for comparison. The Issaquah stock was not included in this assessment because they are a non-native stock from the Issaquah Hatchery that has been in operation since the 1930s (WDFW 2004). The general trend in the abundance for the North Lake Washington Tribes Chinook has remained generally consistent, with escapements between 200 and 500 adults (WDFW 2004). The Cedar River Chinook have shown a long-term negative trend in escapements and chronically low escapement values (WDFW 2004). Spawners in 2007 exceeded the escapement goal for the basin.

Productivity is the measurement of a population’s growth rate through all or a portion of its life-cycle. Recent reports by WDFW and Puget Sound Indian Tribes (2004) state that current habitat conditions constrain productivity and prevent the achievement of recovery

goals. New studies are being conducted to quantify the productivity within the Lake Washington basin, focusing on estimating the total spawning escapement for each stock, estimating the natural smolt production and survival, quantifying freshwater predation, estimating incidental fishing mortality, estimating spawning production above Landsburg Dam, and assessing the pre-spawning mortality (WDFW and PSIT, 2004).

Diversity is important to population viability because: 1) it allows a species to use a wider array of environments than they could without it; 2) it protects against short term spatial and temporal changes in the environment, increasing the likelihood that some individuals would survive and reproduce when faced with environmental variation; and 3) genetic diversity provides the raw material for surviving long-term environmental changes. Genetic analysis of the three populations in the Lake Washington basin, indicated that the North Lake Washington Tributary population and the Issaquah population are genetically very similar, and the Cedar River Chinook are significantly different (WDFW 2004).

The spatial structure of habitat must support the population at the desired productivity, abundance, and diversity levels through short-term environmental perturbations, longer term environmental oscillation, and through natural patterns of disturbance regimes. Assessments for evaluating the adequacy of the spatial structure include: enough available habitat to support growth, abundance, and diversity criteria; habitat of sufficient quality to support the life history activities; permanent or seasonal connectivity to allow adequate migration between spawning, rearing, and migration patches, and; a geographical distribution of habitat that minimizes the probability of a significant portion being lost due to a single catastrophic event. The criteria for identifying core areas for spatial structure are focused on spawning, because spawning is the geographic starting point for structuring populations and there is the most information available on this life phase (Martin et al. 2004). In the Cedar River, all but one of the spawning patches is 2 to 4 miles apart and ranged from 0.1 to 2 miles long (Martin et al. 2004).

The status of Chinook populations in the Lake Washington basin was described in the Salmon and Steelhead Inventory (SaSI) report (WDFW and PSIT 2004). The Issaquah Chinook is rated as “healthy”, due to the high return rates to the hatchery. The North Lake Washington Tribs Chinook is rated “healthy” based on their consistent escapement. The Cedar Chinook is rated as “depressed” based on their long-term negative trend and low escapement numbers.

### *Puget Sound Steelhead*

NMFS defined the PS steelhead ESU to include naturally spawning steelhead stocks below natural and manmade impassable barriers, in streams and rivers ranging from the Canadian border (Nooksack River basin), south through Puget Sound and Hood Canal, north and west to the Elwha River, which empties into the eastern Strait of Juan de Fuca. The PS steelhead are at risk of becoming endangered in the foreseeable future, and were listed as threatened on June 11, 2007 (72 FR 26722-26735). The status of individual

populations within Puget Sound is assessed based on their abundance, productivity, diversity, and spatial structure.

Analysis of the catch records from 1889 indicate that the catch peaked at 163,796 individuals in 1895 (Little, 1898). Assuming a harvest rate of 30-50 percent, Little (1898) estimated that the peak run size ranged from 327,592 to 545,987 fish. In the 1990s the total run size for major stocks in this ESU was greater than 45,000, with total natural escapement of about 22,000. Busby et al. (1996) estimated 5-year average natural escapements for streams with adequate data range from less than 100 to 7,200, with corresponding total run sizes of 550-19,800. Between 1986 and 2004 escapement for the Lake Washington winter-run steelhead ranged from 1,816 (1986) to 44 (2004) (WDFW 2004).

To estimate existing productivity in Lake Washington steelhead, Scott and Gill (2006) used escapement data or indices of escapement from the previous eight years to create a time series. Population viability analyses were conducted under the assumption that only anadromous spawners contribute to the abundance of each population. This assumption may result in estimates of extinction that are too high because the presence of resident forms of *O. mykiss* (rainbow trout) may reduce the likelihood of extinction. The Lake Washington winter-run steelhead last escapement data was listed at 44, with a growth rate estimate of -0.16 and a p-value of 0.16. The relative risk of extinction for populations of steelhead in the Puget Sound region is very high, because productivity is poor.

Examples of diversity among salmonids include morphology, fecundity, run timing, spawn timing, juvenile behavior, age at smolting, age at maturity, egg size, and development rate, among others (McElhaney et al. 2000). Of these traits, some are genetically based, while others are likely a result of a combination of genetic and environmental factors. Allozyme analysis of steelhead sampled in the Cedar River in 1994 clusters them with winter steelhead in the Green, White, and Puyallup rivers, and with some Snohomish basin steelhead stocks (WDFW 2004).

The metrics and benchmarks for evaluating the adequacy of a population's spatial structure include: quantity, quality, connectivity, dynamics, and catastrophic risks. Scott and Gill (2006) estimate that zero percent to 19 percent of the pre-settlement range has been lost for the winter-run steelhead within the Cedar/Sammamish basin, represented by a contraction of zero to 44 miles and an extension of zero miles, with a current distribution of 183 miles.

Based on the above described criteria and conditions, the status of the Lake Washington winter steelhead was defined in the SaSI report (WDFW 2004). Based on the chronically low escapement and short-term severe decline in escapements, the stock status has decreased from its 1992 "depressed" status to "critical" in 2002.

## Status of Critical Habitat

The NMFS reviews the status of designated critical habitat affected by the proposed action by examining the condition and trends of Primary Constituent Elements (PCEs) throughout the designated area. The PCEs are the physical and biological features identified as essential to the conservation. Sites include freshwater spawning, freshwater rearing, freshwater migration, estuarine areas, nearshore marine areas, and offshore marine areas. The critical habitat in Lake Washington contains freshwater rearing and freshwater migration. Essential physical and biological features include water quantity and floodplain connectivity that support juvenile growth and mobility; water quality and forage that support juvenile development; and natural cover consisting of shade, large wood, log jams, beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks and water free of artificial obstructions that support juvenile and adult mobility and survival.

At the time that each habitat area was designated as critical habitat, that area contained one or more PCEs within the acceptable range of values required to support the biological processes of listed species. As part of the process to designate critical habitat within the PS Chinook ESU, NMFS assessed the conservation value of habitat within freshwater, estuarine and nearshore areas at the fifth field hydrologic unit code (HUC) scale, across the entire range of the ESU. The HUC scale corresponds generally to the watershed scale, and these areas were rated as providing “low”, “medium”, or “high” conservation value. NMFS rated the fifth field HUC within which the action area lies as having a “medium” conservation value. As described in more detail within the Environmental Baseline section below, PCEs of critical habitat within the project and action area are generally degraded from a variety of human-induced, habitat process and structural changes.

## 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).

Lake Washington is the second largest natural lake in the state of Washington with 80 miles of shoreline, including about 30 miles along the shore of Mercer island (Shared Strategy, 2007). Lake Washington also has the highest human population of any water resource inventory area in Washington State. Over 82 percent of the Lake Washington shoreline is armored and is shaded by more than 2,700 piers and docks (Shared Strategy, 2007). Regulated lake levels and extensive armoring have hampered sediment transport and sandy beaches need to be augmented by periodic sediment supplies. Additional factors affecting the habitat features in the Lake Washington basin include a lack of riparian vegetation due to clearing and development; loss of channel and shoreline complexity including a lack of woody debris and pools; the development of fish passage

barriers with the construction of road crossings, weirs, and dams; and degraded water and sediment quality caused by increases in pollutants and high temperatures (Shared Strategy, 2007).

The Radandt property is located on the Hunts Point peninsula on the east side of the lake. The tip of the peninsula is almost completely armored with approximately 804 linear feet of existing bulkhead, with a water depth of 2.5 feet at ordinary high water. The existing pier and boathouse provide nearly 1,800 square feet of overwater coverage, most of which is right at the shoreline. The pier has a solid decked surface within two feet of ordinary high water. The pier is built with a boat slip that is lined with 26 feet of skirting in shallow water. About 700 square feet of the boathouse extends over the water. The property has large conifer and deciduous trees scattered across the lot. Some small shrubbery function as ground cover and the remaining landscape is grass.

### Effects on Listed Species

Based on the information provided and developed during the consultation, NMFS concludes that the proposed action will adversely affect the listed species and their critical habitat. Adverse effects on listed species include short-term increases in noise and turbidity and long-term permanent loss of shallow water habitat, extensive overwater shading, and reduced riparian vegetation recruitment and growth. Some of the effects of the action will be so small (changes in water quality) or timed such that salmon and steelhead are exceedingly unlikely to experience them (increased sound pressure levels from pile driving). As such the effects are insignificant or discountable and are not analyzed further in this consultation.

### *Loss of Shallow Water Habitat*

The presence of the riprap bulkhead prevents restoration of shallow water habitat, which juvenile salmonids rely on for forage opportunities and protection from predation. Bulkheads create a homogenous shoreline, when salmonids prefer complex habitats including boulders, woody debris, and riparian cover (Roni and Quinn, 2001). Bulkheads may vary in composition, ranging from riprap structures to concrete blocks. Riprap provides the ideal habitat for juvenile salmonid predators that prefer to forage at armored banks (Tabor et al., 2007). Bulkheads also alter sediment transport and restrict the development of shallow low-gradient shorelines.

### *Overwater Shading*

Toft et al. (2007) assessed the abundance of fish at the various types of shoreline and determined that juvenile salmon were not usually observed underneath overwater structures. Juveniles tend to avoid piers because they physically block normal movement patterns or decrease light levels (Toft et al. 2007). Additionally, predatory bass species are associated with in-water and over-water structures. The amount of light transmission at the project site continues to be compromised through the excessive walkway widths. By using grated decking over some of the structure, the applicant ameliorates some of the

adverse affects by increasing the light penetration. However, there is still an excessive amount of structure and portions with solid decking.

### *Reduced Riparian Vegetation*

Juvenile salmonids rely on shoreline vegetation for the organic debris, insect recruitment, and shading it provides. By providing organic debris, riparian vegetation increases the nutrient input for waters which increases the amount of forage material available, especially aquatic and terrestrial insects.

Koehler et al. (2006) determined that the availability of terrestrial prey is low in Lake Washington, and attributed the low number of insects to the replacement of natural riparian vegetation with riprap, bulkheads, and other impervious surfaces. Such a limiting factor on a key prey component of juvenile Chinook salmon may reduce their rearing capabilities in nearshore areas and may have cascading effects on fish growth and survival (Toft et al., 2007). Although Koehler et al. (2006) document that Chinook are feeding close to their maximum daily rates, the diet is composed almost exclusively by *Daphnia* species rather than insects.

### Effects on Critical Habitat

The PCEs that the action area provides are freshwater rearing, and migration. The short term effects of construction on the critical habitat will be insignificant and return to pre-construction conditions following the cessation of actions. Effects of activities at the project site, such changes in water quality (increased turbidity) and noise (increased sound pressure levels from pile driving), are temporary and localized and will not affect the functional role of PCEs in the action area as a threshold matter. As such, they will have no effect on conservation value of critical habitat in the watershed in which the action area lies.

The long term effects of the actions include reduced riparian habitat and increased overwater structures. Riparian vegetation contributes organic debris, forage material, and natural cover. The presence of bulkheads and piers directly reduces opportunity for riparian recruitment. To minimize the effects, the applicant includes a planting plan for approximately 2,000 square feet of shoreline, an improvement over existing conditions. Overwater structures increase the amount of shading, providing cover for predators and decreasing the amount of light that penetrates through to the water. The effects of the overwater structure are minimized through the use of grated decking material, which allow for light transmission. Due to the extensive minimization efforts, the resulting determination for the effect on critical habitat is “not likely to adversely affect.”

### 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 consultation (50 CFR 402.02).

By the year 2025, the projected human population growth for King, Snohomish, and Pierce Counties is 323,290 people, which is a 53 percent increase (Redman et al. 2005). With these projections, NMFS assumes that future private and state actions will continue within the action area, increasing as population density rises. New development is likely to further reduce the conservation value of habitat within the watershed through water withdrawals, stormwater quality degradation and increased volumes, loss of riparian functions, and encroachment to floodplains.

NMFS believes that the existing King County regulatory mechanisms to minimize and avoid impacts to watershed function from future commercial, industrial, and residential development are generally not adequate, and/or not implemented sufficiently. Thus, while these existing regulations could decrease adverse effects to watershed function, they still allow incremental degradation to occur, which accumulate over time, and when added to the degraded environmental baseline, further degrade habitat conditions, and reduce habitat quality and suitability for PS Chinook and PS steelhead.

### Conclusion

After reviewing the status of PS Chinook and PS steelhead, the environmental baseline for the action area, the effects of the proposed action, and cumulative effects, NMFS concludes that the action will not influence, let alone exacerbate existing risks to viability of the Lake Washington populations of PS Chinook and PS steelhead. Therefore, the proposed action will not jeopardize the continued existence of either species. Furthermore, since the proposed action will not alter the conservation role of PCEs of critical habitat in the action area, and therefore will not reduce the conservation value of critical habitat, the proposed action will not destroy or adversely modify the designated critical habitat for PS Chinook. These conclusions are based on the following considerations:

1. The bulkhead is being replaced to create three coves and provide juveniles more access to shallow water habitat with the installation of spawning gravel.
2. The planting plan will improve the shoreline function by providing natural cover and forage material for rearing juvenile salmonids.

Therefore, the proposed action is not expected to appreciably reduce long-term survival and recovery of PS Chinook and PS steelhead.

### 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. The applicant proposes extensive conservation measures, such as the creation of coves and the large planting plan. NMFS finds these

proposed conservation measures sufficient for the minimization of effects to listed species, has no recommendations to add to the proposed conservation measures.

### Reinitiation of Consultation

Reinitiation of formal consultation is required and shall be requested by the Federal agency or by NMFS where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that has an effect to the listed species or designated critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat is designated that may be affected by the identified action (50 CFR 402.16).

To reinitiate consultation, contact the Washington State Habitat Office of NMFS and refer to the NMFS Tracking Number assigned to this consultation.

### **Incidental Take Statement**

Section 9(a)(1) of the ESA prohibits the taking of endangered species without a specific permit or exemption. Protective regulations adopted pursuant to section 4(d) extend the prohibition to threatened species. Among other things, an action that harasses, wounds, or kills an individual of a listed species or harms a species by altering habitat in a way that significantly impairs its essential behavioral patterns is a taking (50 CFR 222.102). Incidental take refers to 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(o)(2) exempts any taking that meets the terms and conditions of a written incidental take statement from the taking prohibition.

### Amount or Extent of Take

The effects of the action, both adverse and beneficial, will co-occur with the presence of both Puget Sound Chinook and steelhead. Fish exposed to those effects will respond to their exposure in various ways, but some are certain to respond by changing their normal behavior in the action area such that they will be injured or killed. Therefore, incidental take of PS Chinook and PS steelhead is reasonably certain to occur.

The proposed action causes take in the form of harm, or habitat modification to a degree that impairs normal behavioral patterns at the place of the modification such that affected fish are injured or killed. The proposed action consists of the repair of an existing residential pier and waterfront. Despite the inclusion of measures to ameliorate the existence of this infrastructure (added cove beaches), harm occurs through the perpetuation of the habitat modification caused by that residential waterfront. Thus, juvenile Chinook and steelhead will be burdened in their rearing and migration

behavioral patterns by the continued reduced availability of food and protection from predation caused by the pier. This burden equates to injury.

For actions that cause take in the form of harm, NMFS' ability to quantify the amount of take in numbers of fish can be difficult if not impossible to accomplish because of the range of individual fish responses to habitat change. Some will encounter changed habitat and merely react by seeking out a different place in which to express their present life history. Others might change their behavior, causing them to express more energy, suffer stress, or otherwise respond in ways that impair their present or subsequent life histories. Yet others will experience changed habitat in way that kills them.

While this uncertainty makes it impossible to quantify take in the form of harm in terms of numbers of animals injured or killed, the extent of habitat change to which present and future generations of fish will be exposed is readily discernable and presents a reliable measure of the extent of take that can be monitored and tracked. Therefore, when the specific number of individuals "harmed" cannot be predicted, NMFS quantifies the extent of take based on the extent of habitat modified (June 3, 1986, 51 FR 19926 at 19954).

Take from this project includes reduced production of prey species caused by shading and potential increased predation associated with the excessive pier and bulkhead structures. The extent of the habitat shaded by the proposed action is 1,572 square feet of habitat, and the amount of shallow habitat reduced by the presence of a bulkhead extend along 617 linear feet. The estimated extent of habitat affected by proposed action represents the extent of take exempted in this incidental take statement. These extents are readily observable and therefore suffice to trigger reinitiation of consultation, if exceeded and necessary (see H.R. Rep. No 97-567, 97th Cong., 2d Sess. 27, 1982).

#### Reasonable and Prudent Measures

Reasonable and prudent measures are nondiscretionary measures to avoid or minimize take that must be carried out by cooperators for the exemption in section 7(o) (2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement where discretionary Federal involvement or control over the action has been retained or is authorized by law. The protective coverage of section 7(o)(2) will lapse if the COE fails to exercise its discretion to require adherence to terms and conditions of the incidental take statement, or to exercise that discretion as necessary to retain the oversight to ensure compliance with these terms and conditions. Similarly, if any applicant fails to act in accordance with the terms and conditions of the incidental take statement, protective coverage will lapse.

The NMFS believes that full application of conservation measures included as part of the proposed action, together with use of the reasonable and prudent measures and terms and conditions described below, are necessary and appropriate to minimize the likelihood of incidental take of listed species due to completion of the proposed action.

The COE shall:

1. Minimize the effects of the overwater structure on listed fish.

### Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE and its cooperators, including the applicant, if any, must fully comply with conservation measures described as part of the proposed action and the following terms and conditions that implement the reasonable and prudent measures described above. Partial compliance with these terms and conditions may invalidate this take exemption, result in more take than anticipated, and lead NMFS to a different conclusion regarding whether the proposed action will result in jeopardy or the destruction or adverse modification of designated critical habitats.

1. To implement Reasonable and Prudent measure No. 1, the COE shall ensure that:

The entire surface are of the pier shall be grated.

NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify NMFS Law Enforcement at (206) 526-6133 or (800) 853-1964. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

### **MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT**

The consultation requirement of section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect EFH. Adverse effects include the direct or indirect physical, chemical, or biological alterations 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 to EFH may result from actions occurring within EFH or outside EFH, 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 may be taken by the action agency to conserve EFH.

Based on information provided in the BE and the analysis of effects presented in the ESA portion of this document, NMFS concludes that proposed action will have the following adverse effects on EFH designated for Chinook salmon and coho salmon.

- Excessive solid overwater structures.

### **Essentia Fish Habitat Conservation Recommendations**

The NMFS believes that implementation of one of the following conservation measures is necessary to avoid, mitigate, or offset the impact of the proposed action on EFH. While NMFS understands that the COE intends to conduct the proposed action with the included minimization and mitigation measures described in the Opinion, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the Terms and Condition in the Incidental Take Statement is applicable to the effects of the action on designated EFH for Chinook and coho salmon and will address these adverse effects. Consequently, NMFS recommends that it be adopted as an EFH conservation recommendation.

### **Statutory Response Requirement**

Federal agencies are required to provide a detailed written response to NMFS' EFH conservation recommendations within 30 days of receipt of these recommendations (50 CFR 600.920(j)(1)). The response must include a description of measures proposed to avoid, mitigate, or offset the adverse effects of the activity on EFH. If the response is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations. The reasons must include the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

### **Supplemental Consultation**

The COE 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(k)].

## **DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW**

Section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-554) (Data Quality Act) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the consultation addresses these Data Quality Act (DQA) components, documents compliance with DQA, and certifies that this consultation has undergone pre-dissemination review.

**Utility:** Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended

users of this consultation include the COE, the applicant, and citizens of King County interested in the effects of projects on Puget Sound Chinook and steelhead.

**Integrity:** This consultation was completed on a computer system managed by 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.

**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 MSA implementing regulations regarding EFH, 50 CFR 600.920(j).

***Best Available Information:*** This consultation and supporting documents use the best available information, as referenced in the Literature Cited section. The analyses in this Opinion 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 MSA implementation, and reviewed in accordance with Northwest Region quality control and assurance processes.

## LITERATURE CITED

- Busby, P. J., T. C. Wainwright & G. J. Bryant. 1996. Status Review of West Coast Steelhead from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memorandum, NMFS-NWFSC-27. 261 pp.
- Koehler, M.E., K.L. Fresh, D.A. Beauchamp, J.R. Cordell, C.A. Simenstad, and D.E. Seiler. 2006. Diet and bioenergetics of lake-rearing juvenile Chinook salmon in Lake Washington. Transactions of the American Fisheries Society. 135:1580-1591.
- Little, A.C. 1898. Ninth Annual Report of the State Fish Commissioner to the Governor of the State of Washington. State of Washington, 70 p.
- Martin, D., L. Benda, and D. Shreffler. 2004. Core Areas: a framework for identifying critical habitat for salmon. Presented to King County Department of Natural Resources and Parks. Water and Land Resources Division, Seattle, WA. <ftp://dnr.metrokc.gov/dnr/library/2004/KCR1547/>
- McElhany, P., M. Ruckleshaus, M.J. Ford, T. Wainwright, and E. Bjorkstedt. 2000. Viable Salmon Populations and the Recovery of Evolutionarily Significant Units. U. S. Department of Commerce, National Marine Fisheries Service, Northwest Fisheries Science Center, NOAA Technical Memorandum NMFS-NWFSC-42. 156 p. <http://www.nwfsc.noaa.gov/publications/techmemos/tm42/tm42.pdf>
- Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lieber, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neeley, S.T. Lindley, and R.S. Waples. 1998. Status review of Chinook salmon from Washington, Idaho, Oregon, and California. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-35, 443p.
- NMFS (National Marine Fisheries Service). 2005a. Final Assessment of NOAA Fisheries' Critical Habitat Analytical Review Teams for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead. NOAA Protected Resources Division, 1201 NE Lloyd Blvd Suite 1100, Portland, OR 97232-1274.
- NMFS (National Marine Fisheries Service). 2005b. Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-66, 597p.
- Redman, S. Myers, and D., D. Averill. 2005. Regional Nearshore and Marine Aspects of Salmon Recovery in Puget Sound (draft, June 28, 2005). <http://www.sharedsalmonstrategy.org/plan/index.htm>

- Roni, P. and T.P. Quinn. 2001. Density and size of juvenile salmonids in response to placement of large woody debris in western Oregon and Washington streams. *Canadian Journal of Fishery and Aquatic Sciences*. 58:282-292.
- Scott, J.B. and W.T. Gill. 2006. *Oncorhynchus mykiss*: Assessment of Washington State's anadromous populations and programs. Draft for Public Review and Comment. Washington Department of Fish and Wildlife.
- Shared Strategy (Shared Strategy Development Committee). 2007. Puget Sound Salmon Recovery Plan, Volume 1. Plan adopted by the National Marine Fisheries Service, January 19, 2007. [www.sharedsalmonstrategy.org](http://www.sharedsalmonstrategy.org).
- Tabor, R.A., B.A. Footen, K.L. Fresh, M.T. Celedonia, F. Mejia, D.L. Low, and L. Park. 2007. Smallmouth bass and largemouth bass predation on juvenile Chinook salmon and other salmonids in the Lake Washington basin. *North American Journal of Fisheries Management*. 27(4):1174-1188.
- Toft, J.D., J.R. Cordell, C.A. Simenstad, and L.A. Stamatou. 2007. Fish distribution, abundance, and behavior along city shoreline types in Puget Sound. *North American Journal of Fisheries Management* 27:465-480.
- Waples, R.S. 1991. Pacific salmon, *Oncorhynchus* spp., and the definition of "species" under the Endangered Species Act. *U.S. Natl. Mar. Fish. Serv., Mar. Fish. Rev.* 53:11-22.
- Washington Department of Fish and Wildlife (WDFW). 2004. Salmonid Stock Inventory (SaSI). Washington Department of Fish and Wildlife, Olympia, WA. <http://wdfw.wa.gov/fish/sasi/>
- WDFW and Puget Sound Indian Tribes (PSIT). 2004. Comprehensive management plan for Puget Sound Chinook: harvest management component. Washington Department of Fish and Wildlife, Olympia, WA. [http://wdfw.wa.gov/fish/papers/ps\\_chinook\\_management/harvest/ps\\_chinook\\_harvest.pdf](http://wdfw.wa.gov/fish/papers/ps_chinook_management/harvest/ps_chinook_harvest.pdf)