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JAN 0 4 2012

James M. Joyner
Regulatory Project Manager
Department of the Army
Corps of Engineers
Idaho Falls Regulatory Office
900 North Skyline Drive, Suite A
Idaho Falls, Idaho 83402

Subject: Port of Lewiston Barge Dock Extension—Nez Perce County, Idaho—Biological Opinion
In Reply Refer To: 01EIFW00-2012-F-0009 Internal Use: CONS-100b

Dear Mr. Joyner:

Enclosed are the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) and concurrence on the Army Corps of Engineers (Corps) determinations of effect on species listed under the Endangered Species Act (Act) of 1973, as amended, for the proposal to authorize the Port of Lewiston Barge Dock Extension (Corps Permit No. NWW-2010-00213-W04). In a letter dated September 30, 2011, and received by the Service on October 5, the Corps requested formal consultation on the determination under section 7 of the Act that the proposed project is likely to adversely affect bull trout (*Salvelinus confluentus*) critical habitat. The Corps determined that the proposed project is not likely to adversely affect the bull trout. We are providing concurrence with this determination in the enclosed Opinion.

The enclosed Opinion and concurrence are based primarily on our review of the proposed action, as described in your August 2011 Biological Assessment (Assessment), and the anticipated effects of the action on listed species and critical habitat, and were prepared in accordance with section 7 of the Act. Our Opinion concludes that the proposed project will not destroy or adversely modify bull trout critical habitat. A complete record of this consultation is on file at this office.

Thank you for your continued interest in the conservation of threatened and endangered species. Please contact Clay Fletcher at (208) 378-5256 if you have questions concerning this Opinion.

Sincerely,

for Brian T. Kelly
State Supervisor

Enclosure

cc: NOAA, Grangeville (Brege)
IDFG, Lewiston (Hennekey)

BIOLOGICAL OPINION FOR THE
Port Of Lewiston Barge Dock Extension

01EIFW00-2012-F-0009

January 2012

FISH AND WILDLIFE SERVICE
IDAHO FISH AND WILDLIFE OFFICE
BOISE, IDAHO

Supervisor _____ (acting)

Date JAN 0 4 2012

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1. BACKGROUND AND INFORMAL CONSULTATION

1.1 Introduction

The Fish and Wildlife Service (Service) has prepared this Biological Opinion (Opinion) on the effects of the Port of Lewiston Barge Dock Extension on bull trout (*Salvelinus confluentus*) critical habitat. In a letter dated September 30, 2011, and received on October 5, the Army Corps of Engineers (Corps) requested formal consultation with the Service under section 7 of the Endangered Species Act (Act) of 1973, as amended, for its proposal to authorize the action (Corps Permit No. NWW-2010-00213-W04). The Corps determined that the proposed action is likely to adversely affect bull trout critical habitat. As described in this Opinion, and based on the Biological Assessment (Assessment) (Reeder 2011, entire) developed by the Port of Lewiston's (Port) consultant, Berger ABAM, and other information, the Service has concluded that the action, as proposed, is not likely to destroy or adversely modify bull trout critical habitat.

The Corps has also determined the action is not likely to adversely affect the bull trout. In this document, the Service is providing concurrence with that determination.

1.2 Consultation History

The Service, the Corps, and the consultant from Berger ABAM (who drafted the Assessment) have had the following communication/coordination on the proposed project:

June 6, 2011	The Service received an Assessment and request for concurrence from the Corps.
June 20, 2011	The Service sent the Corps an email explaining the need for additional time to review the Assessment and comment prior to providing concurrence. We also questioned the effects determinations contained in the Assessment.
June 29, 2011	The Service sent comments on the draft Assessment to the Corps and participated in a conference call to discuss the project.
July 6, 2011	The Service was copied on an email exchange between the consultant and the Idaho Department of Fish and Game discussing the probability of bull trout occurrence in the vicinity of the Port.
July 13, 2011	The Service participated in an email exchange with the consultant concerning critical habitat, effects determinations, and work windows.
July 25, 2011	The Service received a revised Assessment from the consultant via email.
August 17, 2011	The Service sent an email to the consultant stating agreement with the contents of the Assessment and effects determinations for bull trout and critical habitat.

October 5, 2011 The Service received the final Assessment[1] and request for consultation.

1.3 Informal Consultations

The Corps proposes to authorize a barge dock extension at the Port located in Lewiston, Idaho. The proposal includes the following actions: (1) relocating a mooring dolphin; (2) installing 200 feet of sheet piling and backfilling to extend the existing dock; (3) installing tiebacks and deadmen (concrete blocks used as anchors); (4) installing new fendering and barge handling systems; (5) installing a new storm drain system with a new oil/water separator for treating stormwater; (6) paving the new dock extension; and, (7) gravelling a 2 acre storage area. The project includes conservation measures to minimize resource impacts. Refer to the Assessment for a complete project description.

1.3.1 Bull Trout

Service concurrence that the proposed action is not likely to adversely affect the bull trout is based on the fact that bull trout use the lower Clearwater River as feeding, migrating, and overwintering habitat. In the vicinity of the proposed dock extension, such use is expected to be at a low level. No spawning and early rearing occurs in the Lower Clearwater River. In addition, during the summer in-water work window bull trout are not expected to be in the action area. For these reasons, effects to bull trout are expected to be discountable.

[1] The Service later determined that we had received a draft Assessment on this date instead of the final version. We notified the Corps and the consultant and subsequently received the final Assessment from the Corps by mail on December 8, 2011. Except for the size of a graveled storage area, there were no significant difference between these two versions of the Assessment.

2. BIOLOGICAL OPINION

2.1 Description of the Proposed Action

This section describes the proposed Federal action, including any measures that may avoid, minimize, or mitigate adverse effects to listed species or critical habitat, and the extent of the geographic area affected by the action (i.e., the action area). The term "action" is defined in the implementing regulations for section 7 as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." The term "action area" is defined in the regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

2.1.1 Action Area

The action area includes the footprint of the existing dock and proposed dock extension at the Port located at Lewiston Idaho, and extends out from the dock for a radial distance of 1,600 feet, the expected limit of detectable terrestrial noise from the project. The Assessment predicts that underwater noise from pile driving will extend out "several hundred meters" (approximately 1,000 feet) and sediment effects 300 feet.

2.1.2 Proposed Action

The Corps proposes to authorize a barge dock extension and associated activities at the Port scheduled to occur during 7.5 months between May and December 2012. Pile installation is planned to occur between July 2 and September 14, 2012, and is estimated to occur over approximately 77 days.

The following description of the proposed action is excerpted and adapted from the description provided in the Assessment. Refer to the Assessment for a complete project description.

2.1.2.1 Relocate Existing Mooring Dolphin

The project will relocate an existing mooring dolphin to a new location 115 feet west (downstream) of the proposed dock extension. The mooring dolphin consists of a group of sheet piles driven into the riverbed and capped with concrete and is located in the river in close proximity to the proposed dock extension.

The existing cylindrical mooring dolphin will be demolished by removing the concrete cap and pulling the sheet piles. Demolition activities will be sequenced to minimize and contain temporary suspended sediment and turbidity, as follows. The dock extension sheet piling will be installed from the corner of the existing dock out to the dolphin creating a new bulkhead. The dolphin sheet piling will be removed by pulling with a crane equipped with a vibratory extractor. By installing a temporary closure and removing several sheet piles from the upstream side of the dolphin, granular fill from the dolphin will be released behind the face of the dock extension sheet pile, and not into the mainstem of the river thereby minimizing sedimentation and turbidity. Once the material has settled into a stable configuration, enough of the dolphin sheets will be pulled to enable completion of the dock extension bulkhead. With the area inside the bulkhead sealed, the remainder of the dolphin sheets will be pulled.

For the new mooring dolphin, a circular template will be installed downstream of the extended dock and sheet piles reinstalled with a vibratory hammer. Following removal of the template, stockpiled gravel will be placed and a new concrete cap installed.

2.1.2.2 Install Sheet Pile and Fill for Dock Extension

The project will extend the existing dock 150 feet downstream by installing an additional 200 lineal feet of sheet pile: 150 feet for the face and 50 feet for the downstream side. The sheet pile will be installed using templates and a vibratory hammer. The area of the extension will be backfilled with approximately 4,850 cubic yards of fill behind the extended sheet pile bulkhead, 2,400 cubic yards of which will be below the elevation of the ordinary high water mark (OHWM). Fill will be placed through the water behind the new sheet pile bulkhead (and not within the river current); no dewatering is anticipated associated with fill placement.

To stabilize the sheet pile wall against the forces exerted by the fill behind it, the project will install concrete deadmen and tiebacks, and paving along its entire length. A portion of the fill will be placed and compacted prior to installing tie rods and concrete deadmen. The remainder of the fill will then be placed and compacted to the level of the bottom of the pavement. After tensioning the tie rods, the concrete pavement along the front of the dock will be placed. After regrading the adjacent apron for proper drainage and installing the oil/water separator (see 2.1.2.5 below), the remainder of the dock and regraded yard will be paved with asphalt concrete paving.

2.1.2.3 Install New Fendering and Barge Handling Systems

The project also includes the construction of a fendering system on the extended dock. The fendering system prevents damage to the vessels and the terminal when barges are berthed and moored at the terminal. The project will also replace a defunct barge handling winch system; with the replacement system, a single operator will be able to position the barges along the face of the dock without help from a tug.

The installation of the fender system will begin with placement of 25 steel pipe fender piles. Piles will be lifted by a crane and installed by a land-based vibratory pile driver. Each pile will be driven approximately 10 feet into the existing riverbed. After the piles have been set to the established elevation, any excess pile length will be removed. ACZA (i.e., Ammoniacal Copper Zinc Arsenate) treated timber wales and chocks will be installed with steel hardware and the access ladders will be installed. Rubber fenders will be attached to the face of the concrete cap along the new sheet pile wall.

2.1.2.4 Regrade and Repave

The area of the project is already almost entirely impervious. The surface of the extended dock will be impervious as well. Areas on the periphery of the dock extension will be re-graded and re-paved. The proposed area of paving consists of 31,440 square feet of asphalt concrete, with an additional 4,800 square feet of concrete, for a total of 36,240 square feet of pavement. This amounts to an increase of 8,377 square feet over the existing impervious surface for the dock extension and 1,263 square feet of new impervious surface for areas adjacent to the existing dock, for a total of 9,640 square feet of new impervious surface.

2.1.2.5 Install Oil/Water Separator

The 9,640-square feet increase in impervious surface will generate additional stormwater runoff. The dock extension will raise the dock elevation by approximately 1 foot to drain stormwater from both the existing and extension docks back to a new storm sewer to be installed above the back slope of the levee.

Storm drainage modifications will be made to channel runoff from both the new and existing areas of the dock to a new oil-water separator. The separator will discharge into the existing 48-inch diameter storm sewer trunk at the nearest manhole; stormwater will then drain into an 80,000-square foot wetland, infiltrate, and then move to the Clearwater River. Stormwater treatment is expected to result in improved water quality from the site.

2.1.2.6 Minor Improvements

These include relocating an existing pole-mounted light that is now adjacent to the dock on the levee apron.

2.1.2.7 Gravel Storage Area

The project includes gravelling a two acre storage area (for cargo, equipment, and materials) that is part of a Corps Real Estate Easement. The proposed storage area is located above the OHWM of the Clearwater River approximately 0.25 mile upstream of the Port's container dock. It is on the landward side of a levee separating the site from the river and is contiguous with Port owned land that has already been graveled. The site has previously been filled, has no existing trees or natural shoreline, and has no surface connection with the Clearwater River. The site will be cleared, grubbed and covered with 12 inches of gravel. Storm drainage will slope away from the Clearwater River to storm water detention ponds. No Clean Water Act permit is required for this action.

2.1.3 Conservation Measures

The project has minimized potential impacts to the maximum extent practicable through use of a vibratory hammer and by installing the smallest and least number of piles needed. Other measures that will be used include:

- The project proposes to conduct in-water work (e.g., pile driving) within the summer work period of July 1 – September 30 to avoid/minimize impacts on listed species and on designated critical habitat.
- Instead of an impact hammer, piles will be removed by wrapping a choker on them and pulling them out with a crane. A vibratory hammer will be used to install sheet piles. This will avoid fish mortality and will minimize the potential for adverse effects to fish from underwater noise and will reduce potential sediment disturbance.
- Silt fence and watering will be used to minimize fugitive dust. The Port's contractor will use water from an off-site source to minimize dust.
- Concrete will be poured on dry land away from any surface waters.
- Materials will be clean, covered where appropriate, and placed in a manner to prevent erosion/spills.

- Equipment will be inspected daily for leaks and proper function and to ensure that equipment is clean and free of external petroleum-based products.
- To the extent practicable, equipment fueling and maintenance activities will be performed on the dock and in the yard where surface drainage is directed to the stormwater treatment equipment already in place.
- Any waste resulting from the project will be disposed at a properly permitted site.
- Staging areas will be located above the OHWM on areas already covered by impervious surface whenever possible.
- The Corps or the Port of Lewiston will prepare, prior to project implementation, and implement a spill prevention and countermeasures plan (SPCC) to minimize the risk of spills and ensure all harmful materials are properly stored, contained, and disposed.

2.2 Analytical Framework for the Adverse Modification Determination

This Opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this Opinion relies on four components:

1. The *Status of Critical Habitat*, which evaluates the rangewide condition of designated critical habitat for the bull trout in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall.
2. The *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area.
3. The *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how that will influence the recovery role of affected critical habitat units.
4. *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on bull trout critical habitat are evaluated in the context of the rangewide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat rangewide will remain functional (or will retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the bull trout.

The analysis in this Opinion places an emphasis on using the intended rangewide recovery function of bull trout critical habitat and the role of the action area relative to that intended function as the context for evaluating the significance of the effects of the proposed Federal

action, taken together with cumulative effects, for purposes of making the adverse modification determination.

2.3 Status of Bull Trout Critical Habitat

This section presents information about the regulatory, biological and ecological status of the bull trout and its critical habitat that provides context for evaluating the significance of probable effects caused by the proposed action.

2.3.1 Legal Status

Current Designation

The Service published a final critical habitat designation for the coterminous United States population of the bull trout on October 18, 2010 (70 FR 63898); the rule became effective on November 17, 2010. A justification document was also developed to support the rule and is available on our website (*http://www.fws.gov/pacific/bulltrout*, last accessed June 29, 2011). The scope of the designation involved the species' coterminous range, which includes the Jarbidge River, Klamath River, Columbia River, Coastal-Puget Sound, and Saint Mary-Belly River population segments (also considered as interim recovery units)[2]. Rangewide, the Service designated reservoirs/lakes and stream/shoreline miles as bull trout critical habitat (Table 1). Designated bull trout critical habitat is of two primary use types: (1) spawning and rearing, and (2) foraging, migration, and overwintering (FMO).

Table 1. Stream/shoreline distance and reservoir/lake area designated as bull trout critical habitat by state

State	Stream/Shoreline Miles	Stream/Shoreline Kilometers	Reservoir/ Lake Acres	Reservoir/ Lake Hectares
Idaho	8,771.6	14,116.5	170,217.5	68,884.9
Montana	3,056.5	4,918.9	221,470.7	89,626.4
Nevada	71.8	115.6	-	-
Oregon	2,835.9	4,563.9	30,255.5	12,244.0
Oregon/Idaho	107.7	173.3	-	-
Washington	3,793.3	6,104.8	66,308.1	26,834.0
Washington (marine)	753.8	1,213.2	-	-
Washington/Idaho	37.2	59.9	-	-
Washington/Oregon	301.3	484.8	-	-
Total	**19,729.0**	**31,750.8**	**488,251.7**	**197,589.2**

The 2010 revision increases the amount of designated bull trout critical habitat by approximately 76 percent for miles of stream/shoreline and by approximately 71 percent for acres of lakes and reservoirs compared to the 2005 designation.

[2] The Service's 5 year review (USFWS Service 2008, p. 9) identifies six draft recovery units. Until the bull trout draft recovery plan is finalized, the current five interim recovery units are in affect for purposes of section 7 jeopardy analysis and recovery. The adverse modification analysis does not rely on recovery units.

This rule also identifies and designates as critical habitat approximately 1,323.7 km (822.5 miles) of streams/shorelines and 6,758.8 ha (16,701.3 acres) of lakes/reservoirs of unoccupied habitat to address bull trout conservation needs in specific geographic areas in several areas not occupied at the time of listing. No unoccupied habitat was included in the 2005 designation. These unoccupied areas were determined by the Service to be essential for restoring functioning migratory bull trout populations based on currently available scientific information. These unoccupied areas often include lower main stem river environments that can provide seasonally important migration habitat for bull trout. This type of habitat is essential in areas where bull trout habitat and population loss over time necessitates reestablishing bull trout in currently unoccupied habitat areas to achieve recovery.

The final rule continues to exclude some critical habitat segments based on a careful balancing of the benefits of inclusion versus the benefits of exclusion. Critical habitat does not include: (1) waters adjacent to non-Federal lands covered by legally operative incidental take permits for habitat conservation plans (HCPs) issued under section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (Act), in which bull trout is a covered species on or before the publication of this final rule; (2) waters within or adjacent to Tribal lands subject to certain commitments to conserve bull trout or a conservation program that provides aquatic resource protection and restoration through collaborative efforts, and where the Tribes indicated that inclusion will impair their relationship with the Service; or (3) waters where impacts to national security have been identified (75 FR 63898). Excluded areas are approximately 10 percent of the stream/shoreline miles and 4 percent of the lakes and reservoir acreage of designated critical habitat. Each excluded area is identified in the relevant Critical Habitat Unit (CHU) text, as identified in paragraphs (e)(8) through (e)(41) of the final rule. It is important to note that the exclusion of waterbodies from designated critical habitat does not negate or diminish their importance for bull trout conservation. Because exclusions reflect the often complex pattern of land ownership, designated critical habitat is often fragmented and interspersed with excluded stream segments.

2.3.2 Conservation Role and Description of Critical Habitat

The conservation role of bull trout critical habitat is to support viable core area populations (75 FR 63898:63943). The core areas reflect the metapopulation structure of bull trout and are the closest approximation of a biologically functioning unit for the purposes of recovery planning and risk analyses. CHUs generally encompass one or more core areas and may include FMO areas, outside of core areas, that are important to the survival and recovery of bull trout.

Thirty-two CHUs within the geographical area occupied by the species at the time of listing are designated under the revised rule. Twenty-nine of the CHUs contain all of the physical or biological features identified in this final rule and support multiple life-history requirements. Three of the mainstem river units in the Columbia and Snake River basins contain most of the physical or biological features necessary to support the bull trout's particular use of that habitat, other than those physical biological features associated with Primary Constituent Elements (PCEs) 5 and 6, which relate to breeding habitat.

The primary function of individual CHUs is to maintain and support core areas, which (1) contain bull trout populations with the demographic characteristics needed to ensure their persistence and contain the habitat needed to sustain those characteristics (Rieman and McIntyre 1993, p. 19); (2) provide for persistence of strong local populations, in part, by providing habitat

conditions that encourage movement of migratory fish (MBTSG 1998, pp. 48–49; Rieman and McIntyre 1993, pp. 22–23); (3) are large enough to incorporate genetic and phenotypic diversity, but small enough to ensure connectivity between populations (Hard 1995, pp. 314–315; Healey and Prince 1995, p. 182; MBTSG 1998, pp. 48–49; Rieman and McIntyre 1993, pp. 22–23); and (4) are distributed throughout the historic range of the species to preserve both genetic and phenotypic adaptations (Hard 1995, pp. 321–322; MBTSG 1998, pp. 13–16; Rieman and Allendorf 2001, p. 763; Rieman and McIntyre 1993, p. 23).

The Olympic Peninsula and Puget Sound CHUs are essential to the conservation of amphidromous bull trout, which are unique to the Coastal-Puget Sound population segment. These CHUs contain marine nearshore and freshwater habitats, outside of core areas, that are used by bull trout from one or more core areas. These habitats, outside of core areas, contain PCEs that are critical to adult and subadult foraging, overwintering, and migration.

Primary Constituent Elements for Bull Trout Critical Habitat

Within the designated critical habitat areas, the PCEs for bull trout are those habitat components that are essential for the primary biological needs of foraging, reproducing, rearing of young, dispersal, genetic exchange, or sheltering. Based on our current knowledge of the life history, biology, and ecology of this species and the characteristics of the habitat necessary to sustain its essential life-history functions, we have determined that the following PCEs are essential for the conservation of bull trout.

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.
2. Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.
3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.
4. Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.
5. Water temperatures ranging from 2 °C to 15 °C (36 °F to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.
6. In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.
7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.

8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

The revised PCEs are similar to those previously in effect under the 2005 designation. The most significant modification is the addition of a ninth PCE to address the presence of nonnative predatory or competitive fish species. Although this PCE applies to both the freshwater and marine environments, currently no non-native fish species are of concern in the marine environment, though this could change in the future.

Note that only PCEs 2, 3, 4, 5, and 8 apply to marine nearshore waters identified as critical habitat. Also, lakes and reservoirs within the CHUs contain most of the physical or biological features necessary to support bull trout, with the exception of those associated with PCEs 1 and 6. Additionally, all except PCE 6 apply to FMO habitat designated as critical habitat.

Critical habitat includes the stream channels within the designated stream reaches and has a lateral extent as defined by the bankfull elevation on one bank to the bankfull elevation on the opposite bank. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain and is reached at a discharge that generally has a recurrence interval of 1 to 2 years on the annual flood series. If bankfull elevation is not evident on either bank, the ordinary high-water line must be used to determine the lateral extent of critical habitat. The lateral extent of designated lakes is defined by the perimeter of the waterbody as mapped on standard 1:24,000 scale topographic maps. The Service assumes in many cases this is the full-pool level of the waterbody. In areas where only one side of the waterbody is designated (where only one side is excluded), the mid-line of the waterbody represents the lateral extent of critical habitat.

In marine nearshore areas, the inshore extent of critical habitat is the mean higher high-water (MHHW) line, including the uppermost reach of the saltwater wedge within tidally influenced freshwater heads of estuaries. The MHHW line refers to the average of all the higher high-water heights of the two daily tidal levels. Marine critical habitat extends offshore to the depth of 10 meters (m) (33 feet) relative to the mean low low-water (MLLW) line (zero tidal level or average of all the lower low-water heights of the two daily tidal levels). This area between the MHHW line and minus 10 m MLLW line (the average extent of the photic zone) is considered the habitat most consistently used by bull trout in marine waters based on known use, forage fish availability, and ongoing migration studies, and captures geological and ecological processes important to maintaining these habitats. This area contains essential foraging habitat and migration corridors such as estuaries, bays, inlets, shallow subtidal areas, and intertidal flats.

Adjacent shoreline riparian areas, bluffs, and uplands are not designated as critical habitat. However, it should be recognized that the quality of marine and freshwater habitat along streams, lakes, and shorelines is intrinsically related to the character of these adjacent features, and that human activities that occur outside of the designated critical habitat can have major effects on physical and biological features of the aquatic environment.

Activities that cause adverse effects to critical habitat are evaluated to determine if they are likely to "destroy or adversely modify" critical habitat by no longer serving the intended

conservation role for the species or retaining those PCEs that relate to the ability of the area to at least periodically support the species. Activities that may destroy or adversely modify critical habitat are those that alter the PCEs to such an extent that the conservation value of critical habitat is appreciably reduced (75 FR 63898:63943). The Service's evaluation must be conducted at the scale of the entire critical habitat area designated, unless otherwise stated in the final critical habitat rule (USFWS and NMFS 1998, pp. 4–39). Thus, adverse modification of bull trout critical habitat is evaluated at the scale of the final designation, which includes the critical habitat designated for the Klamath River, Jarbidge River, Columbia River, Coastal-Puget Sound, and Saint Mary-Belly River population segments. However, we consider all 32 CHUs to contain features or areas essential to the conservation of the bull trout (75 FR 63898:63901, 63944). Therefore, if a proposed action will alter the physical or biological features of critical habitat to an extent that appreciably reduces the conservation function of one or more critical habitat units for bull trout, a finding of adverse modification of the entire designated critical habitat area may be warranted (75 FR 63898:63943).

2.3.3 Current Critical Habitat Condition Rangewide

The condition of bull trout critical habitat varies across its range from poor to good. Although still relatively widely distributed across its historic range, the bull trout occurs in low numbers in many areas, and populations are considered depressed or declining across much of its range (67 FR 71240). This condition reflects the condition of bull trout habitat. The decline of bull trout is primarily due to habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, past fisheries management practices, impoundments, dams, water diversions, and the introduction of nonnative species (63 FR 31647; 64 FR 17112).

There is widespread agreement in the scientific literature that many factors related to human activities have impacted bull trout and their habitat, and continue to do so. Among the many factors that contribute to degraded PCEs, those which appear to be particularly significant and have resulted in a legacy of degraded habitat conditions are as follows: (1) fragmentation and isolation of local populations due to the proliferation of dams and water diversions that have eliminated habitat, altered water flow and temperature regimes, and impeded migratory movements (Dunham and Rieman 1999, p. 652; Rieman and McIntyre 1993, p. 7); (2) degradation of spawning and rearing habitat and upper watershed areas, particularly alterations in sedimentation rates and water temperature, resulting from forest and rangeland practices and intensive development of roads (Fraley and Shepard 1989, p. 141; MBTSG 1998, pp. ii–v, 20–45); (3) the introduction and spread of nonnative fish species, particularly brook trout and lake trout, as a result of fish stocking and degraded habitat conditions, which compete with bull trout for limited resources and, in the case of brook trout, hybridize with bull trout (Leary et al. 1993, p. 857; Rieman et al. 2006, pp. 73–76); (4) in the Coastal-Puget Sound region where amphidromous bull trout occur, degradation of mainstem river FMO habitat, and the degradation and loss of marine nearshore foraging and migration habitat due to urban and residential development; and (5) degradation of FMO habitat resulting from reduced prey base, roads, agriculture, development, and dams.

2.3.4 Effects of Climate Change on Bull Trout Critical Habitat

One objective of the final rule was to identify and protect those habitats that provide resiliency for bull trout use in the face of climate change. Over a period of decades, climate change may

directly threaten the integrity of the essential physical or biological features described in PCEs 1, 2, 3, 5, 7, 8, and 9. Protecting bull trout strongholds and cold water refugia from disturbance and ensuring connectivity among populations were important considerations in addressing this potential impact. Additionally, climate change may exacerbate habitat degradation impacts both physically (e.g., decreased base flows, increased water temperatures) and biologically (e.g., increased competition with non-native fishes).

2.3.5 Consulted on Effects for Critical Habitat

The Service has formally consulted on the effects to bull trout critical habitat throughout its range. Section 7 consultations include actions that continue to degrade the environmental baseline in many cases. However, long-term restoration efforts have also been implemented that provide some improvement in the existing functions within some of the critical habitat units.

2.4 Environmental Baseline of the Action Area

This section assesses the effects of past and ongoing human and natural factors that have led to the current status of the species, its habitat and ecosystem in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have already undergone section 7 consultations, and the impacts of state and private actions which are contemporaneous with this consultation.

2.4.1 Status of Bull Trout Critical Habitat in the Action Area

The project is located in the Middle Fork–Lower Clearwater River Critical Habitat Subunit (CHSU). This CHSU is essential to bull trout conservation because the Clearwater River and Middle Fork Clearwater River primarily serve as migratory corridors, connecting bull trout local populations within the Clearwater River Critical Habitat Unit as well as maintaining connectivity to other Mid-Columbia River bull trout populations. These mainstem river reaches also provide important foraging and overwintering areas for subadult and adult bull trout that originate in upstream CHSUs. The Clearwater River is designated as FMO habitat from its confluence with the Snake River upstream 74.3 miles to its confluence with the South Fork Clearwater River (USFWS 2010, p. 527).

2.4.2 Factors Affecting Bull Trout Critical Habitat in the Action Area

The same factors affecting rangewide status of critical habitat and the species affect critical habitat in the action area. These factors include residential and commercial development, timber harvest, roads, mining, and agriculture which all contribute to very high sediment loads in the Clearwater River during high flow events (USFWS 2002, pp. 44-82).

The baseline condition of the PCEs of critical habitat in the action area is as follows (from Assessment pp. 15–17 with modification to PCE 5)

1. *Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.*
   The action area contains no springs, seeps, or significant sources of groundwater. While the dock itself may provide some moderate amount of thermal refugia for rearing

salmonids, it does not likely influence water temperatures in the Clearwater River significantly. This PCE is not present within the action area.

2. *Migratory habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.*
The action area does serve as a migratory corridor for bull trout. However, water quality and habitat conditions within it limit its suitability. As mentioned previously, no natural cover, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, or large rocks and boulders exist within the action area to provide any specific rearing, wintering, or foraging habitat for adult or juvenile salmonids. The water column habitat within the action area provides adequate volume for rapid adult migration.

3. *An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.*
The action area likely provides an adequate food base for migrating bull trout, as they do not spend significant amounts of time within the action area. Water quality is impaired within the action area, but the action area does provide habitat for native and non-native juvenile fishes and aquatic macroinvertebrates that serve as prey for bull trout.

4. *Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.*
The aquatic environment within the action area has been simplified and channelized, and no side channels, pools, or undercut banks are present within it. It does not provide a diversity of in-stream depths, gradients, velocities, or structure. This PCE is not present within the action area.

5. *Water temperatures ranging from 36 to 59°F (2 to 15°C), with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow, and local groundwater influence.*
Water quality within the action area is impaired due to a lack of riparian vegetation and water temperatures are not within the adequate thermal range. No significant amount of natural cover or riparian vegetation is present within the action area. Water temperatures in this section of the Clearwater River are likely suitable only for bull trout that are migrating through the area. This PCE is present within the action area for FMO habitat.

6. *In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable for bull trout will likely vary from system to system.*
The Clearwater River within the action area is not suitable for spawning or juvenile rearing of bull trout. The nearshore habitat is extremely limited and the shoreline is armored. Substrates within the action area are largely sands, silts, and clays and lack the gravel or cobble component necessary for adequate oxygenation of developing eggs. This PCE is not present within the action area.

7. *A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.*
   The Clearwater River within the action area does not contain a natural hydrograph due to the dams that exist upstream and downstream that regulate seasonal flows. This PCE is not present within the action area.

8. *Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.*
   Water quality within the action area is impaired because of its lack of riparian vegetation and its artificial isolation from the floodplain. No natural cover (i.e., shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, or large rocks and boulders) is present within the action area. Water quantity in the Clearwater River is generally not an issue as it is regulated by dams, but water quality is impaired and listed on the 2008 303(d) list for supersaturated dissolved gas. The action area likely provides suitable water quantity but impaired water quality for migrating bull trout.

9. *Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass), interbreeding (e.g., brook trout), or competing (e.g., brown trout) species that, if present, are adequately temporarily and spatially isolated from bull trout.*
   The Clearwater River within the action area has populations of several nonnative predatory species. This PCE is not present within the action area.

The above narrative indicates that of the nine identified PCEs only PCEs 2 (migratory habitat), 3 (abundant food base), 5 (water temperature), and 8 (water quality/quantity) are present in the action area or would be influenced by the project.

2.5 Effects of the Proposed Action

Effects of the action considers the direct and indirect effects of an action on the listed species and/or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action. These effects are considered along with the environmental baseline and the predicted cumulative effects to determine the overall effects to the species. Direct effects are defined as those that result from the proposed action and directly or immediately impact the species or its habitat. Indirect effects are those that are caused by, or will result from, the proposed action and are later in time, but still reasonably certain to occur. An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation.

2.5.1 Direct and Indirect Effects of the Proposed Action

The Service has designated the Clearwater River as critical habitat for bull trout (see description in section 2.4.1 above). Table 2 below shows which PCEs are present in the action area and the anticipated effects to those PCEs resulting from project implementation.

Table 2. PCEs, Environmental Baseline, and Determination of Effect for bull trout critical habitat in the action area for the Port of Lewiston's barge dock extension.

	Primary Constituent Elements (PCEs)	Environmental Baseline Present or Absent	Determination of Effect (LAA = Likely to Adversely Affect; NLAA = Not Likely to Adversely Affect)
1	Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.	Absent	No Effect
2	Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.	Present	LAA short-term resulting from suspended sediment/turbidity (from pile driving) and underwater noise associated with sheet pile installation with vibratory hammer. In addition, extending the dock will permanently reduce available migratory habitat by 5,500 square feet.
3	An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.	Present (forage fish)	NLAA – no significant reduction in the availability of forage fish for bull trout will occur due to project implementation.
4	Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and un-embedded substrates, to provide a variety of depths, gradients, velocities, and structure.	Absent	No Effect
5	Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will vary depending on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; and local groundwater influence.	Present	NLAA – no significant impact to water temperature will occur due to project implementation.
6	In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.	Absent	No Effect
7	A natural hydrograph, including peak,	Absent	No Effect

	Primary Constituent Elements (PCEs)	Environmental Baseline Present or Absent	Determination of Effect (LAA = Likely to Adversely Affect; NLAA = Not Likely to Adversely Affect)
	high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departures from a natural hydrograph.		
8	Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.	Present but with impaired water quality, 303(d) list	LAA short-term from project generated suspended sediment and turbidity.
9	Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.	Absent	No Effect

As shown in Table 2, the project will result in suspended sediment/turbidity and underwater noise from pile driving which will have a short-term adverse effect to PCEs 2 (migratory habitat), and 8 (water quality). Conservation Measures incorporated into the project will reduce the magnitude of anticipated effects. These measures include using a vibratory hammer for pile driving and applying fill within the confines of the new extension bulkhead which should capture most suspended sediment. The dock extension will result in the permanent loss of 5,500 square feet of migratory habitat. But given the large size of the Clearwater River in the action area, the functionality of the habitat in providing migratory and over wintering habitat for bull trout will not be significantly impaired by this loss.

2.5.2 Effects of Interrelated or Interdependent Actions

The Service has not identified effects from actions that are interrelated or interdependent with the proposed action.

2.6 Cumulative Effects

The implementing regulations for section 7 define cumulative effects to include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Opinion. 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 Act.

We assume that many of the threats to critical habitat identified previously in this Opinion will continue to impact critical habitat, including climate change. Warming of the global climate seems quite certain. Changes have already been observed in many species' ranges consistent with changes in climate (ISAB 2007, p. iii; Hansen et al. 2001, p. 767). Global climate change threatens bull trout throughout its range in the coterminous United States. Downscaled regional climate models for the Columbia River basin predict a general air temperature warming of 1.0 to 2.5 °C (1.8 to 4.5 °F) or more by 2050 (Rieman et al. 2007, p. 1552). This predicted temperature trend may have important effects on the regional distribution and local extent of habitats available to salmonids (Rieman et al. 2007, p. 1552), although the relationship between changes

in air temperature and water temperature are not well understood. Bull trout spawning and early rearing areas are currently largely constrained by low fall and winter water temperatures that define the spatial structuring of local populations or habitat patches across larger river basins. Habitat patches represent networks of thermally suitable habitat that may lie in adjacent watersheds and are disconnected (or fragmented) by intervening stream segments of seasonally unsuitable habitat or by actual physical barriers (Rieman et al. 2007, p. 1553).

With a warming climate, thermally suitable bull trout spawning and rearing areas are predicted to shrink during warm seasons, in some cases very dramatically, becoming even more isolated from one another under moderate climate change scenarios (Rieman et al. 2007, pp. 1558–1562; Porter and Nelitz 2009, pp. 5–7). Climate change will likely interact with other stressors, such as habitat loss and fragmentation (Rieman et al. 2007, pp. 1558–1560; Porter and Nelitz 2009, p. 3); invasions of nonnative fish (Rahel et al. 2008, pp. 552–553); diseases and parasites (McCullough et al. 2009, p. 104); predators and competitors (McMahon et al. 2007, pp. 1313–1323; Rahel et al. 2008, pp. 552–553); and flow alteration (McCullough et al. 2009, pp. 106–108), rendering some current spawning, rearing, and migratory habitats marginal or wholly unsuitable. Over a period of decades, climate change may directly threaten the integrity of the essential physical or biological features described in PCEs 1, 2, 3, 5, 7, 8 and 9.

2.7 Conclusion

The Service has reviewed the current status of bull trout critical habitat, the environmental baseline in the action area, effects of the proposed action, and cumulative effects, and it is our conclusion that the proposed action is not likely to destroy or adversely modify designated critical habitat for bull trout. The project will result in short-term adverse effects to the PCEs of critical habitat. We expect that project Conservation Measures should reduce the magnitude of adverse effects, but not eliminate them. The project will not impact the functionality of the Clearwater CHU or, by extension, critical habitat rangewide in providing for the conservation of the bull trout.

2.8 Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop new information on listed species. We recommend the following conservation recommendations for this project:

1. Establish riparian vegetation, especially trees and shrubs, in the vicinity of the Port where feasible.
2. Assess the feasibility of adding instream features such as rock barbs to increase habitat complexity for migrating and overwintering bull trout and/or their prey base in the action area.
3. Monitor the effectiveness of the proposed oil/water separator and other components of the storm water run-off system for minimizing risks to water quality in the Clearwater River.

2.9 Reinitiation Notice

This concludes formal consultation on the proposed project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if:

1. New information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion.
2. The agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion.
3. A new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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