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JUL 26 2011

Michael R. Williams
Acting Forest Supervisor
Payette National Forest
800 West Lakeside Avenue
McCall, Idaho 83638

Subject: Big Creek Bridge and Ford Reclamation—Valley County, Idaho—Biological Opinion
CONS-100b 14420-2011-F-0227

Dear Mr. Williams:

Enclosed are the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) and concurrence with the Payette National Forest's (Forest) determinations of effect on species listed under the Endangered Species Act (Act) of 1973, as amended, for the proposed Big Creek Bridge and Ford Reclamation in Valley County, Idaho. In a letter dated June 22, 2011, and received by the Service on June 24, 2011, the Forest requested formal consultation on the determination under section 7 of the Act that the proposed project is likely to adversely affect designated critical habitat for bull trout (*Salvelinus confluentus*). The Forest determined that the proposed project is not likely to adversely affect bull trout, and requested our concurrence with this determination. The Forest also determined that the proposed project will have no effect on the Canada lynx (*Lynx canadensis*); we acknowledge this determination.

The enclosed Opinion and concurrence are based primarily on our review of the proposed action, as described in your June 22, 2011 Biological Assessment (Assessment) and the anticipated effects of the action on listed species, and were prepared in accordance with section 7 of the Act. Our Opinion concludes that the proposed project will not adversely modify designated critical habitat for bull trout. A complete record of this consultation is on file at this office.

This Opinion is also intended to address section 7 consultation requirements for the issuance of any project-related permits required under section 404 of the Clean Water Act. Use of this letter and associated Opinion to document that the Army Corps of Engineers (COE) has fulfilled its responsibilities under section 7 of the Act is contingent upon the following conditions:

1. The action considered by the COE in their 404 permitting process must be consistent with the proposed project as described in the Assessment such that no detectable difference in the effects of the action on listed species will occur.
2. Any terms applied to the 404 permit must also be consistent with conservation measures and terms and conditions as described in the Assessment and addressed in this letter and Biological Opinion.

Thank you for your continued interest in the conservation of threatened and endangered species. Please contact Allyson Turner at (208) 685-6952 if you have questions concerning this Opinion.

Sincerely,

Brian T. Kelly
State Supervisor

Enclosure

cc: NOAA, Boise (Lind)
USACE, Boise (Martinez)

BIOLOGICAL OPINION
FOR THE
Big Creek Bridge and Ford Reclamation Project
14420-2011-F-0227

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

Supervisor _____

Date 7-25-11

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1. BACKGROUND AND INFORMAL CONSULTATION

1.1 Introduction

The Fish and Wildlife Service (Service) has prepared this Biological Opinion (Opinion) of the effects of the Big Creek Bridge and Ford Reclamation on designated bull trout (*Salvelinus confluentus*) critical habitat. In a letter dated June 22, 2011, and received on June 24, 2011, the Payette National Forest (Forest) requested formal consultation with the Service under section 7 of the Endangered species Act (Act) of 1973, as amended, for its proposal to carry out the action. The Forest determined that the proposed action is likely to adversely affect designated bull trout critical habitat. As described in this Opinion, and based on the Biological Assessment (Assessment) (Forest Service 2011a) developed by the Forest and other information, the Service has concluded that the action, as proposed, is not likely to adversely modify designated bull trout critical habitat.

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

1.2 Consultation History

The Service, National Marine Fisheries Service, and Forest representatives have had the following meetings regarding the project:

March 8, 2011	Agencies discussed the proposed project at a Forest Level 1 meeting.
April 14, 2011	Agencies discussed the proposed project at a Forest Level 1 meeting.
May 3, 2011	Agencies discussed the proposed project at a Forest Level 1 meeting and reviewed the proposed engineering plans for the bridge.
May 20, 2011	The Forest provided a draft Assessment to the Service for review.
May 24, 2011	The Service transmitted comments on the draft Assessment to the Forest.
June 24, 2011	The Service received the Final Assessment and the Forest requested consultation.
July 25, 2011	The Service provided the draft biological opinion to the Forest for review.

1.3 Informal Consultations

1.3.1 Bull Trout

Big Creek is considered occupied by bull trout, and it is designated as bull trout critical habitat. Because the species is unlikely to be present during project implementation, effects are considered insignificant and discountable. The project will have measurable negative effects on

critical habitat, however, and those effects are discussed below. Service concurrence that the Project is not likely to adversely affect bull trout is based on the following rationales presented in the Assessment:

- The Project site is only used by migratory bull trout, and they are expected to be present in low numbers during construction. Furthermore, any bull trout present will be able to easily avoid project effects making the impacts to bull trout insignificant.
- Crossing Big Creek with heavy equipment and dump trucks to deliver materials and construct the road and bridge abutments on the east side are expected to have negligible effects on adult or rearing juvenile bull trout. The habitat at the Big Creek Ford crossing is not preferred habitat for juvenile bull trout, and density of bull trout is low.
- Bull trout spawning habitat is not expected to be affected by the proposed action. The action area is not spawning habitat for bull trout so effects to redds or spawning fish are considered discountable.

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 proposed project is located near Edwardsburg, Idaho, in the Middle Fork of the Salmon River Watershed. The bridge construction is approximately 200 feet north of the existing Big Creek Ford site (Figure 1). All bridge and road construction would occur on Forest lands. The optimum bridge location is perpendicular to the river resulting in a span of about 80 feet. The long span and minimal incline of the approaches with a quick ramp up and 4 percent gradient bridge will require minimal cut and fill and stream bank disturbance during construction. Approximately 1,000 feet of new road will be constructed as well as work on the existing dispersed site on the west side of the ford. This is included as part of the action area. Furthermore, a borrow pit at the headwaters of Big Creek, below Profile Gap, may be utilized for additional fill material.

The action area includes the immediate footprint of the project described above and approximately 1 mile downstream in Big Creek where effects may be realized.

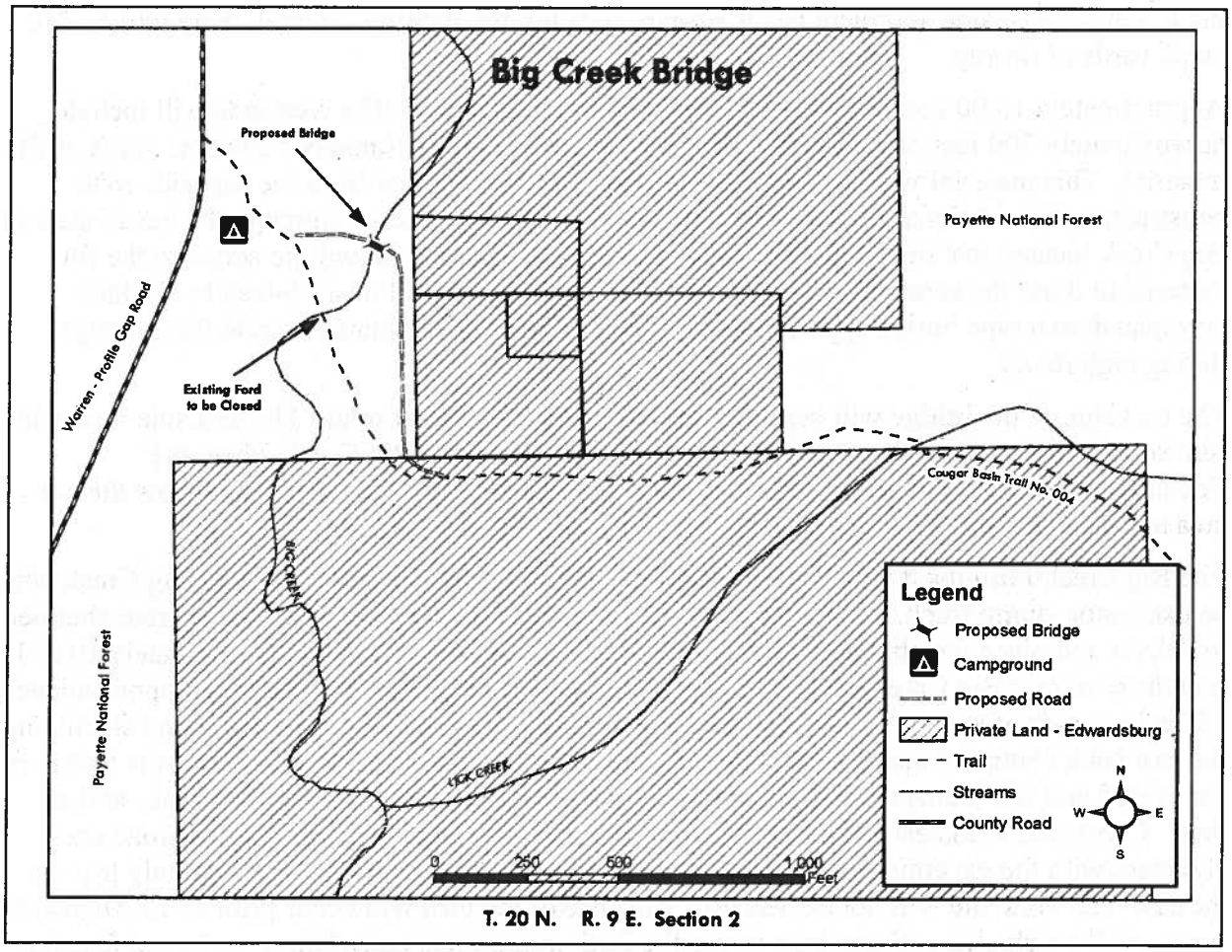

Figure 1. Big Creek Bridge and ford location.

2.1.2 Proposed Action

2.1.2.1 Bridge Construction

The bridge is proposed for construction during the summer of 2011. The bridge will be an approximately 80 foot, prefabricated, two-piece (spliced), full-spanning (*i.e.*, no central pier), galvanized steel bridge covered with pre-treated wood planks and with abutments located above the bank full width to minimize channel disturbance. Bridge abutments will be made of pre-cast concrete (east side) and mechanically stabilized earthen (MSE) walls (west side), placed on the east and west side of Big Creeks using excavator. The bridge will have a gradient of four percent and will be approximately perpendicular to the thalweg of Big Creek. A small pad will likely be constructed on the east bank of Big Creek to provide a safe location for the excavator to prepare and place the abutments. Concrete or steel planks will be attached to the abutments and placed by crane to prevent heavy equipment from entering Big Creek at the bridge site. The bridge will have about 3.9 feet of freeboard above bankfull width to provide for passage of debris during high flows. Rip-rap will be placed around both abutments. The west bank work will incorporate the MSE wall and rip-rap will not be in the channel, and the east side rip-rap will be keyed in below water level. The MSE wall only needs rip-rap slightly above the bankfull

mark, but the east side abutment needs rip-rap to its top for stability; in total, there will be 210 cubic yards of rip-rap.

Approximately 1,000 feet of new road construction would occur. The west side will include approximately 300 feet of road and will be constructed of approximately 520 cubic yards of fill material. This material will be composed primarily of material cut from the east side road construction (if additional fill is needed, it may come from a borrow source in the headwaters of Big Creek located just below Profile Gap). At least one cross drain will be added to the fill material to drain the area during high flows. This cross drain will be a 71-inch by 47-inch corrugated arch pipe buried approximately 12 inches deep to facilitate juvenile fish passage during high flows.

The east side of the bridge will include approximately 700 feet of road. The east side road will turn south and rise abruptly up a side slope to the terrace above Big Creek where the Edwardsburg subdivision is located. Wattles will be used above the riprap and below the cut area and around temporary stockpiles to prevent sediment delivery.

The Big Creek Ford itself would be needed for construction use and for crossing Big Creek with an excavator, dump truck, and fuel truck to prepare the east side banks for the concrete abutment, to deliver and place the abutment, and to haul rip-rap. It is expected that approximately 10 to 15 roundtrips across Big Creek Ford will be needed for heavy equipment to transport approximately 125 cubic yards of excavated material to the MSE wall location and constructing and stabilizing the east bank abutment and access routes. Operators will cross by truck daily until the bridge is completed and will transport fuel for refueling equipment in truck mounted fuel tanks at that time. Construction materials will be staged on the east side for construction of the road and abutment with the exception of fuel, but separate trips to acquire fuel beyond the daily trips to the east side work site will not be needed. Most use of the ford will occur prior to 15 August, but some smaller vehicles will continue to use the ford until project completion. A Forest fisheries biologist, or trained delegate, should be available to help oversee this phase of the action to minimize disturbance. Fisheries biologists from the Nez Perce Tribe have also agreed to be present during construction to ensure disturbance to fish is minimized.

Final survey and bridge designs will be completed by the Forest, and will incorporate the following criteria:

- The concrete Bridge abutment will be above bank full width, and the MSE wall will be built into the ground below bankfull and protected with rip-rap.
- Coffer dams, straw wattles, or some other effective erosion control prevention structure will be erected around the bridge abutment sites prior to earth moving activities to minimize sediment delivery to Big Creek during the excavation period.
- The bridge will be constructed of steel to protect investment from wildland fire damage.
- Bridge decking will be constructed of pressure and pentachlorophenol treated wood (treatment applied off-site).
- Access to the bridge will be restricted to non-motorized use except for special use authorizations (*e.g.*, for owners of private land on the east side of Big Creek, fire suppression needs, etc.). The bridge will be used as a crossing for trail users.
- Silt fence or wattles will be used to prevent delivery of sediment to streams during work and after completion until the approaches have revegetated.

Following construction, the Forest may transfer jurisdiction of the bridge and west side approach road to Valley County subject to approval by the Board of Commissioners. Such conveyance would include an agreement to manage the road with access restricted as described above and will require separate section 7 consultation.

Anticipated Construction Sequence

1. Work will proceed as soon as the Contractor can access the site. The plan is to begin work before 15 August if the site is accessible.
2. Work will start with a pioneer road to the bridge site, clearing and grubbing material will be stockpiled for use in the ford obliteration.
3. A small overflow culvert will be installed in a low area near the beginning of the road. The final overflow arch will be installed near the end of project completion because the cut material on the far bank is needed to cover over the pipe.
4. Work will proceed with construction of the MSE abutment, placement of the shallow foundation, and riprap. Stream crossings by the heavy equipment will occur before 15 August to minimize potential disturbance of spawning Chinook, but will be required to build abutments and ramps to the bridge as described previously. Passenger trucks will still require access through the ford for fueling and equipment maintenance until the bridge is placed.
5. Once the abutments and riprap are in place, the bridge will be placed by crane and the pre-treated wood decking planks will be installed.
6. Once the roadwork is finished, the bridge will be used to transport whatever is needed to complete construction.
7. The project site will be broadcast seeded once complete.

2.1.2.2 Dispersed Site Improvements and Ford Reclamation

Dispersed Site Improvements

The need to close the Big Creek Ford was identified by Forest biologists as early as 1992 during screening pursuant to listing Chinook salmon under the Act. Because the ford accesses the Forest trail system, the west side of the ford constituted a dispersed campground where people could camp, unload stock, and access the trail to Cougar Basin (Trail 004). Because of the proposed closure of the ford and the need to accommodate use of the trail and regulate parking, some improvement of the dispersed camping and parking area on the west side bench above the floodplain and outside the Riparian Conservation Area (which would be 180 feet for a lodgepole vegetation type) will also occur. These efforts include the following:

- The existing pit toilet will be removed and replaced with a relocated CXT vault.
- The existing hitch rails will be relocated to create more parking.
- At the point of the road closure (*i.e.*, gate) accessing the bridge, a looped turn-around will be constructed.
- The existing information board and trail registration station will be relocated to a position closer to the gate and looped turn around.

These improvements to the dispersed site will produce minimal ground disturbance and change to the semi-primitive nature of the site. The Forest believes they are necessary to accommodate changes to the area caused by the bridge construction.

Ford Reclamation

Ford reclamation will follow bridge construction. The Big Creek Ford site is estimated to be no larger than 200 feet long by 20 feet wide on both sides of the creek which is approximately 8,000 square feet, or less than 0.2 acres. The site is dominated by riparian shrubs such as willows and dogwood with gravel/cobble soils. The approaches to the ford will be ripped to reduce soil compaction. Native vegetation, mainly willows and sedges, will be planted to establish riparian vegetation and restore riparian function over time. Much work will be performed with a tracked excavator, which the Forest has used effectively many times to plant shrubs and trees as needed and to disperse woody debris to further trap moisture and sediment. Large boulders of sufficient size to preclude displacement by the recreating public will be placed to preclude access to the ford by motor vehicles. Rehabilitation will proceed as soon as possible following bridge construction. In the event that all rehabilitation work cannot be concluded before summer of 2012 (*e.g.,* optimal transplant time for vegetation is not mid-summer), the ford will be physically barricaded pending completion of the work. The completed bridge will be used for the rehabilitation phase if it is necessary to work on the east side.

Anticipated Construction Sequence

The expected procedure is as follows:

- Block vehicle access by completely removing the road and placing boulders if necessary.
- Use a trackhoe excavator to loosen compacted soils and prepare sites for transplanted vegetation.
- Transplant the adjacent riparian vegetation and organic material into the road prism. Suitable sod and shrub transplants will be barrowed from accessible areas but with consideration not to impact the adjacent riparian area. Work will be done in the fall season when plants are dormant to increase the chance of survival.
- Hydromulch application:
    - Use Biosol, a soil amendment and fertilizer, on disturbed soils above bankfull height to increase soil productivity and plant production.
    - Use a wood mulch and tackifier to prevent surface erosion, retain moisture, and provide organic material.
- Plant native shrub seedlings to fill in areas not transplanted.

2.1.2.3 Conservation Measures

The Forest included many conservation measures to reduce impacts to resources as part of the proposed action. They will all appear in the construction contract.

Hazardous Spill Protection Measures

Before beginning any work, a Hazardous Spill Plan and a list of actions to be taken in the event of a spill will be submitted by the contractor. Preventive measures to be taken will be incorporated into the plan, such as the location of mobile refueling facilities, storage and handling of hazardous materials, and similar information. The hazardous spill plan will describe

how the contractor will comply with the following three methods to minimize fuel/oil leakage from construction equipment into the stream channel:

- All equipment used for instream work will be cleaned of external oil, grease, dirt and mud and leaks repaired prior to arriving at the project site. All equipment will be inspected by the Contracting Officer's Representative before unloading at the site. Any leaks or accumulations of grease will be corrected before entering streams or areas that drain directly to streams or wetlands.
- Equipment used for in-stream or riparian work (including chainsaws and other hand power tools) will be fueled and serviced in an established staging area. When not in use, vehicles will be stored in the designated staging area. The staging area should be in an area that will not deliver petroleum products to streams.
- Oil-absorbing floating booms, and other equipment such as pads and absorbent "peanuts" appropriate for the size of the stream, will be available on-site during all phases of construction. For very small streams with few pools or slack water, booms may not be effective. Booms will be placed in a location that facilitates an immediate response to potential petroleum leakage.

Soil Erosion Control Measures

Prior to the start of construction, a written plan will be submitted that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Work will not begin until the necessary controls for that particular phase of work have been implemented.

The Contractor will submit an erosion control plan and must comply with the following measures:

- In order to protect aquatic organisms, screens will be installed on the intake of pumps with opening of 3/32-inch.
- Stockpiles of material will be placed in a manner that prevents direct entry of sediment into the stream, by either preventing the erosion of sediments or collecting the sediments before it reaches the stream.
- Permanent and temporary control features will be constructed to intercept sediments. A settling basin will be constructed, or a portable one used, that is able to handle the volume of water anticipated, and that provides filtering capability. Dewatering of the excavation site, (of ground water from the excavation) will be done by pumping water to the settling basin and the basin shall be cleaned out when full of sediments.
- All project operations will cease, except efforts to minimize storm or high flow erosion, under precipitation and high flow conditions that result in uncontrollable erosion in the construction area.

Additional Measures

Several specific mitigations for this project (in addition to project design features discussed above) include the following:

- The work window for bridge construction will be during summer low flows, and will be completed as quickly as possible, weather and snowpack conditions permitting. This timing means that work will be performed while Snake River Spring Chinook salmon are in the area and may be spawning. This date should also provide the contractor with a safe

and dry window to complete the work and safely deliver heavy equipment and materials to the site with little chance of snow or other adverse weather conditions.

- All equipment will be inspected prior to mobilization to the site to ensure there are no hydraulic fluid or oil leaks and cleaned to remove build-up of chemical contaminants; similarly, all soil and organic matter will be removed to reduce the potential to spread terrestrial and aquatic invasive species.
- Immediately upon project completion, disturbed areas will be mulched or seeded to provide for temporary soil stability and promote the rapid re-vegetation of the area.
- Use of the ford prior to construction will be minimized to the extent possible with materials for the east side staged there early in the process. Fuel will be transported daily in truck mounted fuel tanks for fueling heavy equipment when the workers travel to the east side; additional trips for refueling will not be needed.
- Forest and/or Nez Perce Tribe personnel will be available to discourage adult salmon presence in the ford during required stream crossings associated with construction.

2.2 Analytical Framework for the Adverse Modification Determination

2.2.1 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 would remain functional (or would 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 the 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.

Critical habitat is defined in section 3(5)(A) of the Act as "the specific area within the geographic area occupied by the species on which are found those physical or biological features essential to the conservation of the species, and that may require special management considerations or protection, and specific areas outside the geographical area occupied by a species at the time it is listed, upon determination that such areas are essential for the conservation of the species." The Act defines conservation as the procedures necessary to bring about the eventual recovery and delisting of a listed species.

2.3.1 Bull Trout Critical Habitat

2.3.1.1 Legal Status

Ongoing litigation resulted in the U.S. District Court for the District of Oregon granting the Service a voluntary remand of the 2005 critical habitat designation. Subsequently the Service published a proposed critical habitat rule on January 14, 2010 (75 FR 2260) and a final rule on October 18, 2010 (75 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). The scope of the designation involved the species' coterminous range, which includes the Jarbidge River, Klamath River, Coastal-Puget Sound, St. Mary-Belly River, and Columbia River population segments (also considered as interim recovery units)[1].

Rangewide, the Service designated reservoirs/lakes and stream/shoreline miles in 32 critical habitat units (CHU) as bull trout critical habitat (see Table 1). Designated bull trout critical habitat is of two primary use types: (1) spawning and rearing (SR); and (2) foraging, migrating, and overwintering (FMO).

[1] The Service's 5 year review (Fish and Wildlife 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.

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**

Compared to the 2005 designation, the final rule 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.

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 mainstem 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, 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 would 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 four percent of the lakes and reservoir acreage of designated critical habitat. Each excluded area is identified in the relevant 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.

2.3.1.2 Conservation Role and Description of Critical Habitat

The conservation role of bull trout critical habitat is to support viable core area populations (75 FR 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.

As previously noted, 32 CHUs within the geographical area occupied by the species at the time of listing are designated under the final 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 and biological features associated with Primary Constituent Elements (PCEs) 5 and 6, which relate to breeding habitat (see list below).

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 (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 (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, migrating, and overwintering.

In determining which areas to propose as critical habitat, the Service considered the physical and biological features that are essential to the conservation of bull trout and that may require special management considerations or protection. These features are the PCEs laid out in the appropriate quantity and spatial arrangement for conservation of the species. The PCEs of designated critical habitat are:

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 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 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 departures 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.

2.3.1.3 Current Rangewide Condition of Bull Trout Critical Habitat

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 primary land and water management activities impacting the physical and biological features essential to the conservation of bull trout include timber harvest and road building, agriculture and agricultural diversions, livestock grazing, dams, mining, urbanization and residential development, and nonnative species presence or introduction (75 FR 2282).

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.
5. Degradation of FMO habitat resulting from reduced prey base, roads, agriculture, development, and dams.

The bull trout critical habitat final rule also aimed 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 nonnative fishes).

2.3.1.4 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).

2.3.1.5 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 Bull Trout Critical Habitat

2.4.1.1 Status of Bull Trout Critical Habitat in the Action Area

Big Creek from its confluence with the Middle Fork Salmon River upstream 12.4 miles to its headwaters provides SR habitat and FMO habitat. Logan Creek provides 8.3 miles of SR and flows into Big Creek. The Middle Fork of Smith Creek, Smith Creek, and the South Fork of Smith Creek provide 2.3, 6.2, and 3.0 miles, respectively, of SR habitat. Although the habitat in Big Creek at the project site is designated as SR habitat for bull trout, the species is not believed to presently spawn there, and fish are present in such low numbers that during project implementation the project area is considered unoccupied (Fish and Wildlife Service 2010, pp. 531-532). (Figure 2).

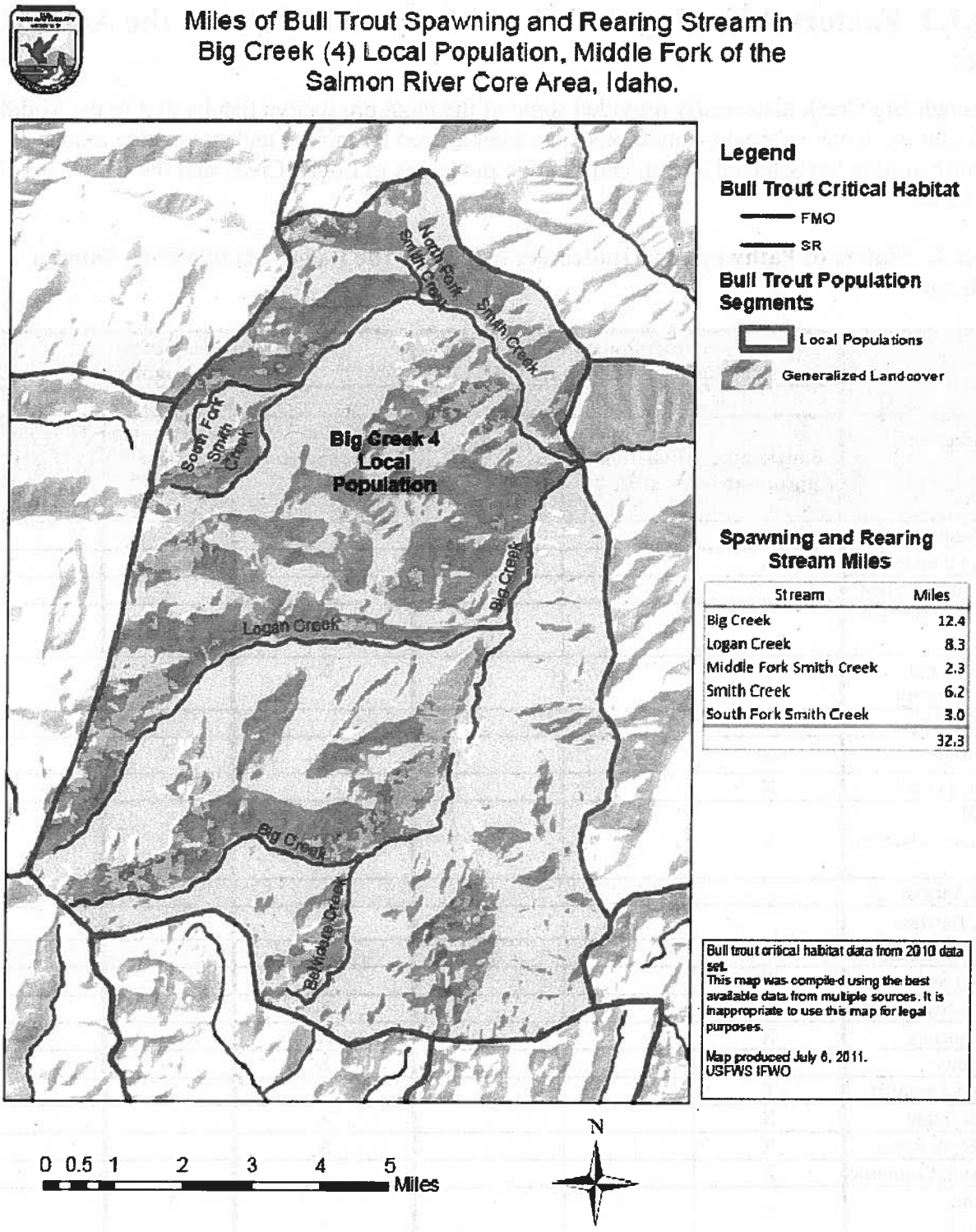

Figure 2. Miles of designated bull trout critical habitat in the Big Creek Local Population.

2.4.1.2 Factors Affecting Bull Trout Critical Habitat in the Action Area

Although Big Creek historically provided some of the most productive fish habitat in the Middle Fork Salmon River subbasin, conditions have been altered by mining and streamside roads. Historic mining has affected stream and riparian processes in Logan Creek and the mainstem of Big Creek.

Table 2. Matrix of Pathways and Indicators (MPI) for the Lower Middle Fork Salmon drainage.

Pathways and Indicators	Environmental Baseline Condition2			Environmental Baseline Condition		
	Lower Middle Fork			Upper Big Creek		
	Functioning Appropriately	Functioning at Risk	Functioning at Unacceptable Risk	Functioning Appropriately	Functioning at Risk	Functioning at Unacceptable Risk
Local Population Character						
Local Population Size	X				X	
Growth and Survival		X			X	
Life History Diversity and Isolation	X				X	
Persistence and Genetic Integrity	X			X		
Water Quality						
Temperature	X				X	
Intragravel Quality	X				X	
Chemical Contaminants/Nutrients	X			X		
Habitat Access						
Physical Barriers		X			X	
Habitat Elements						
Interstitial Sediment	X					X
Large Woody Debris	X			X		
Pool Frequency	X			X		
Pool Quality	X			X		
Off-channel Habitat	X				X	
Habitat Refugia	X			X		
Width/Depth Ratio	X			X		
Streambank Condition	X			X		
Floodplain Connectivity	X				X	

[2] Indicators of high, moderate, or low condition.

Pathways and Indicators	Environmental Baseline Condition3			Environmental Baseline Condition		
	Lower Middle Fork			Upper Big Creek		
	Functioning Appropriately	Functioning at Risk	Functioning at Unacceptable Risk	Functioning Appropriately	Functioning at Risk	Functioning at Unacceptable Risk
Flow/Hydrology						
Change in Peak/Base Flow	X				X	
Drainage Network Increase		X			X	
Watershed Conditions						
Road Density and Location	X					X
Disturbance History	X				X	
Riparian Conservation Areas	X				X	
Disturbance Regime	X			X		
Integration of Species and Habitat Conditions	X				X	

Using the Matrix of Pathways and Indicators (MPI) (Table 2) for the Lower Middle Fork subwatershed the Assessment rated the following pathways and indicators as being in high condition: Local Population Size, Life History Diversity and Isolation, Persistence and Genetic Integrity, Temperature, Intragravel Quality, Chemical Contaminants/Nutrients, Interstitial Sediment, Large Woody Debris, Pool Frequency, Pool Quality, Off-channel Habitat, Habitat Refugia, Width/Depth Ratio, Streambank Condition, Floodplain Connectivity, Change in Peak/Base Flow, Road Density and Location, Disturbance History, Riparian Conservation Areas, Disturbance Regime, and Integration of Species and Habitat Conditions. Furthermore, Growth and Survival, Physical Barriers, and Drainage Network Increase are rated as being in moderate condition.

For the Upper Big Creek subwatershed, using the MPI the Assessment rated the following pathways and indicators as being in high condition: Persistence and Genetic Integrity, Chemical Contaminants/Nutrients, Large Woody Debris, Pool Frequency, Pool Quality, Off-channel Habitat, Habitat Refugia, Width/Depth Ratio, Streambank Condition, and Disturbance Regime. The following pathways and indicators are rated as being in moderate condition: Local Population Size, Growth and Survival, Life History Diversity and Isolation, Temperature, Intragravel Quality, Physical Barriers, Off-Channel Habitat, Floodplain Connectivity, Change in Peak/Base Flow, Drainage Network Increase, Disturbance History, Riparian Conservation Areas, and Integration of Species and Habitat Conditions. Furthermore, Interstitial sediment, Road Density, and Location are rated as being in poor condition.

[3] Indicators of high, moderate, or low condition.

Changes in hydrology and temperature caused by changing climate have the potential to negatively impact aquatic ecosystems in Idaho, with salmonid fishes being especially sensitive. Average annual temperature increases due to increased carbon dioxide are affecting snowpack, peak runoff, and base flows of streams and rivers (Mote et al. 2003, p. 45). Increases in water temperature may cause a shift in the thermal suitability of aquatic habitats (Poff et al. 2002, p. iii). For species that require colder water temperatures to survive and reproduce, warmer temperatures could lead to significant decreases in available suitable habitat. Increased frequency and severity of flood flows during winter can affect incubating eggs and alevins in the streambed and over-wintering juvenile fish. Eggs of fall spawning fish, such as bull trout, may suffer high levels of mortality when exposed to increased flood flows (ISAB 2007, p. iv).

Of the nine PCEs of bull trout critical habitat, all occur in the action area. The same factors affecting bull trout in the action area affect the PCEs of critical habitat. The MPI provides a means to assess the baseline condition of the PCEs in the action area and the effects of the action on the PCEs as described in the Assessment.

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 Bull Trout Critical Habitat

2.5.1.1 Direct and Indirect Effects of the Proposed Action

In the action area, the Service has designated Big Creek and tributaries as critical habitat for bull trout (see description in section 2.4.1 above). The MPI for bull trout is used to evaluate and document baseline habitat conditions and to aid in determining whether a project is likely to adversely affect or result in the incidental take of bull trout. See Appendix E in the Assessment for the MPI used to assess effects to bull trout.

Analysis of the affected MPI habitat indicators can provide a thorough evaluation of the existing baseline condition and potential project impacts to the Primary Constituent Elements (PCEs) of bull trout critical habitat (see Table 3 below).

As shown in Table 3, the project will result in suspended sediment which will adversely affect PCEs 2 and 8 in the short-term. The project will result in some degradation of the stream bank stability indicator by fording equipment through Big Creek which translates into adverse effects to PCE 4. All effects are expected to be short-term and the project will result in long-term improvements to the affected PCEs and therefore to critical habitat in the action area. The

Resource Protection Measures incorporated into the project will reduce the magnitude of anticipated effects. These measures include revegetating disturbed areas; mulching with weed-free straw; stopping work if erosion or saturated soil is present at the site; and using silt fences, straw bales, and/or sandbags to control erosion.

Table 3. Crosswalk between critical habitat PCEs and MPI showing environmental baseline, effects of the action and determination of effects (from the Forest's 2011 Addendum (Forest Service 2011b)).

	Primary Constituent Elements (PCEs)	Associated Habitat Indicators	Environmental Baseline Present or Absent	Effects of the Actions (Restore, Maintain, or Degrade)	Determination of Effect
1	Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.	Floodplain Connectivity, Change in Peak/Base Flows, Increase in Drainage Network, Riparian Conservation Areas, Chemical Contamination/Nutrients.	Present	Degrade short-term (streambank stability). Restore long-term (all indicators).	NLAA (not Likely to Adversely Affect)
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.	Life History Diversity and Isolation, Persistence and Genetic Integrity, Temperature, Chemical Contamination/Nutrients, Physical Barriers, Average Wetted Width/Maximum Depth Ratio in Scour Pools in a Stream Reach, Change in Peak/Base Flows, Refugia.	Present	Degrade short-term (suspended sediment). Restore long-term (all indicators).	LAA short-term
3	An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.	Growth and Survival, Life History Diversity and Isolation, Riparian Conservation Areas, Floodplain Connectivity.	Present	Degrade short-term (macroinvert-ebrate abundance). Restore long-term.	NLAA
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.	Large Woody Debris, Pool Frequency and Quality, Large Pools, Off Channel Habitat, Refugia, Average Wetted Width/Maximum Depth Ratio in Scour Pools in a Stream Reach, Streambank Condition, Floodplain Connectivity, Riparian Conservation Areas.	Present	Degrade short-term (streambank stability, refugia). Restore long-term (all indicators) with rehabilitation of the ford.	LAA short-term

	Primary Constituent Elements (PCEs)	Associated Habitat Indicators	Environmental Baseline Present or Absent	Effects of the Actions (Restore, Maintain, or Degrade)	Determination of 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.	Temperature, Refugia, Average Wetted Width/Maximum Depth Ratio in Scour Pools in a Stream Reach, Streambank Condition, Change in Peak/Base Flows, Riparian Conservation Areas, Floodplain Connectivity.	Present	Degrade short-term (streambank stability). Restore long-term (all indicators).	NLAA
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.	Sediment, Substrate Embeddedness, Intragravel Quality, Interstitial Sediment, Large Woody Debris, Pool Frequency and Quality.	Present	Degrade short-term (streambank stability). Restore long-term (all indicators). Even though spawning habitat does not exist, it is designated as SR habitat for bull trout.	LAA short-term
7	A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departures from a natural hydrograph.	Change in Peak/Base Flow, Increase in Drainage Network, Disturbance History, Disturbance Regime.	Present	Maintain	No Effect
8	Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.	Sediment, Substrate Embeddedness, Intragravel Quality, Interstitial Sediment, Chemical Contamination/Nutrients, Change in Peak/Base Flows.	Present	Degrade short-term (suspended sediment). Restore long-term (all indicators).	NLAA
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.	Persistence and Genetic Integrity, Physical Barriers.	Absent	Maintain	No Effect

2.5.1.2 Effects of Interrelated or Interdependent Actions

The Service has not identified any effects from interrelated or interdependent actions.

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.

Because approximately 99 percent of the Middle Fork Salmon River watershed is under Forest Service management, the cumulative effects of future state, tribal, local, and private actions is limited. We assume many of the threats to critical habitat identified in the Assessment 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). 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. Critical habitat rangewide would remain functional (or would 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.

2.8 Incidental Take Statement

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without specific exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm in the definition of take in the Act means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation that results in death or injury to a listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Because adverse effects are not anticipated for the bull trout species and take cannot be exempted for designated critical habitat, a take statement is not included here.

2.9 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.

The Service has the following conservation recommendations for the Big Creek Bridge and Ford Reclamation project:

1. Should the Forest proceed with transferring jurisdiction of the Big Creek Bridge to Valley County, the Service recommends a separate consultation.
2. Conduct spawning surveys in the Big Creek drainage in an attempt to confirm bull trout spawning and early rearing.
3. Continue to identify and implement restoration actions in the Big Creek drainage.

2.10 Reinitiation Notice

This concludes formal consultation on the Big Creek Bridge and Ford Reclamation 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.

3. LITERATURE CITED

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