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APR 12 2006

Memorandum

To: Field Manager, Cottonwood Field Office, Coeur d'Alene District, Bureau of Land Management, Cottonwood, Idaho

From: Field Supervisor, Snake River Fish and Wildlife Office, Fish and Wildlife Service Boise, Idaho

Subject: American River Restoration Project, Idaho County, Idaho—Biological Opinion File #1005.2000 F-06-375

This memorandum transmits the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) on the effects of the American River Restoration Project (Project) to species listed under the Endangered Species Act (Act) of 1973, as amended. In a letter dated February 15, 2006, and received by the Service on February 16, 2006, the Bureau of Land Management (Bureau) requested formal consultation on the determination under section 7 of the Endangered Species Act (Act) of 1973, as amended, that the Project is likely to adversely affect bull trout (*Salvelinus confluentus*).

The Bureau determined that the Project will have no effect on the gray wolf (*Canis lupus*), Canada lynx (*Lynx canadensis*), bald eagle (*Haliaeetus leucocephalus*), MacFarlane's four-o'clock (*Mirabilis macfarlanei*), Spalding's catchfly (*Silene spaldingii*), and yellow-billed cuckoo (*Coccyzus americanus*), a candidate species. The Bureau also determined that the Project may impact westslope cutthroat trout (*Oncorhyncus clarki lewisi*), redband trout (*Oncorhyncus mykiss*), and Pacific lamprey (*Lampetra tridentate*), but that the Project is not likely to cause a trend toward Federal listing or loss of viability for these Bureau sensitive species. The Service acknowledges these determinations.

The enclosed Opinion is based primarily on our review of the proposed action as described in your February 2006 Biological Assessment (Assessment) regarding the effects of the proposed action on the bull trout and was prepared in accordance with section 7 of the Act. We conclude that the survival and recovery of bull trout populations will not be jeopardized by the Project. A complete administrative 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.

Enclosure

cc: FWS, Portland (Salata) electronic version
IDFG, Region II, Lewiston (Hennekey)
NOAA Fisheries, Grangeville (Brege)
NPT, Lapwai (Jones)

BIOLOGICAL OPINION
FOR THE
AMERICAN RIVER RESTORATION PROJECT
BUREAU OF LAND MANAGEMENT
COUER D'ALENE DISTRICT
COTTONWOOD FIELD OFFICE

APRIL 2006
FISH AND WILDLIFE SERVICE
SNAKE RIVER FISH AND WILDLIFE OFFICE
BOISE, IDAHO

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INTRODUCTION

The Fish and Wildlife Service (Service) has prepared the following Biological Opinion (Opinion) in response to the Bureau of Land Management (Bureau) request for formal consultation on the effects to bull trout (*Salvelinus confluentus*) from the proposed American River Restoration Project (Project).

The Bureau determined that the Project is likely to adversely affect bull trout. Based on the analysis presented in the Biological Assessment (Assessment) for this action, the Service concludes that the survival and recovery of bull trout populations will not be jeopardized by the Project.

CONSULTATION HISTORY

The Bureau and the Service have had the following meetings and correspondence concerning the proposed Project.

November 26, 2003	The Service received electronic mail notification that the Bureau was planning a restoration project with several components in the American River watershed.
December 3, 2003	The Service received documents from the Bureau describing the proposed restoration actions at a Level 1 Interagency Streamlined Consultation meeting.
February 8, 2005	The Service received a draft Assessment for the Project and participated in discussions on the Project at a Level 1 meeting.
April 12, 2005.	The Service participated in discussions on the Project at a Level 1 meeting.
July 11, 2005	The Service received from the Bureau, by mail, maps and drawings for the Project.
July 12, 2005	The Service received from the Bureau an electronic version of the revised Assessment.
July 14, 2005	The Service participated in a conference call on the Project with the Bureau and discussed a few additional clarification needs/edits for the Assessment.
July 25, 2005	The Service received an electronic version of the revised Assessment.
August 29, 2005	The Service received another revised version of the Assessment.

August 31, 2005	The Service sent to the Bureau, by electronic mail, a suggested turbidity monitoring protocol for inclusion in the Assessment.
September 6, 2005	The Service participated in a conference call with Bureau to discuss turbidity monitoring and other revisions to the Assessment.
September 12, 2005	The Service received an electronic version of the revised Assessment.
September 15, 2005	The Service contacted the Bureau by telephone and requested that Project timeframes/schedules for the Project be included in the Assessment.
September 16, 2005	The Service received an electronic mail from the Bureau with draft scheduling wording to be included in the Assessment.
September 23, 2005	The Service sent an electronic mail stating that we agreed with the contents of the final Assessment and the determinations for listed species.
February 16, 2006	The Service received the final Assessment and request for formal consultation.

BIOLOGICAL OPINION

I. DESCRIPTION OF PROPOSED ACTION

A. Action Area

The action area is located in the American River watershed, near Elk City, Idaho. Approximately 3.4 miles of proposed instream restoration is located in T29N, R8E, Sections 2, 3, 25, 27, 28, and 33. A culvert replacement is proposed at the confluence of the East Fork American River and the mainstem American River, T29N, R8E, Section 11. A stream channel reconnect and road to all-terrain vehicle (ATV) trail conversion is proposed for Telephone Creek, a tributary to the American River (T 29N, R 8E, Section 12).

B. Proposed Action

1. Instream Structures

Fish habitat conditions in American River are below desired condition – 40 to 60 percent of estimated potential. To address this situation in 3.4 miles of selected reaches, the Bureau proposes to restore habitat conditions to 80 percent of potential by constructing instream structures and excavating pools. Specifically, the Bureau proposes to install 100 to 120 rock check dams to create pool habitat; 1,000 pieces of large woody debris; and 1,500 habitat rocks. Specifications and design criteria for each of these categories of improvements and general design criteria for all categories are as shown in Appendix A of this Opinion. Work is expected to occur between 2006 and 2009 during two to three week periods over two to four years.

a. Upstream "V" Check Dams

These structures will be constructed of large boulders, 1.5 to 3 feet in diameter, which will be "keyed" into the channel bottom and streambanks. They will be constructed so that fish passage will be maintained even during low flows. Structures will be configured to channel water so that a pool naturally forms immediately downstream of the structure. To facilitate pool formation and maintenance, 2 to 6 cubic yards of material will be excavated from the stream bottom downstream of each check dam. Excavation work will be staged over two to four years to reduce sediment effects. Also in order to further reduce the level of sediment impacts, if feasible, pool excavation will occur during higher flows (e.g., early July), while installation of rock check dams will occur from mid-July to mid-August during a lower flow period.

b. Large Woody Debris

Logs and root wads will be selectively placed instream to provide improved cover and habitat complexity. Logs and/or root wads with boles will typically be 1 to1.5 feet in diameter and 8 to 12 feet in length. Logs will be embedded in streambanks and/or secured with large habitat rocks. Tree felling in riparian habitat conservation areas (RHCAs) will only occur where that activity will not affect Riparian Management Objectives (RMOs) for shade and woody debris recruitment. Wood for instream placement will be taken from outside the RHCA wherever practical.

c. Habitat Rocks

Habitat rocks will include rocks typically 1.5 to 3 feet in diameter. Placement of rocks will often be done in conjunction with placement of large woody debris, or more typically, in combination with other rocks to provide for instream cover and complexity.

d. Stream Improvement Structure Maintenance

As needed, the Bureau will maintain or remove existing stream improvement structures. Objectives of such maintenance or removal will primarily be to prevent adverse bank erosion, reduce adverse effects to fish habitat (e.g., non-functional log check dam causing bank erosion), or improve placement and function of existing check dams, woody debris, or habitat rocks. The appropriate work specifications identified for instream fish habitat improvement will be followed (Appendix A).

2. East Fork American River Culvert Replacement Project

The Bureau proposes to replace a six foot culvert with a 20 foot wide pre-cast concrete bridge at the confluence of East Fork American River with the main American River. The existing culvert is a partial to full passage barrier for bull trout and anadromous salmonids. Replacing the culvert will provide access to 11.4 miles of suitable habitat. The contractor will temporarily de-water the work site by using a culvert and a lined ditch. Abutments for the new bridge will be

construction is completed, the road fill and surface material will be removed from the stream channel and floodplain areas. The road area will be ripped and seeded with primarily native species (seed mix will include annual rye). Construction is planned to occur in 2006 between July 1 and October 15, during the low flow period. Total expected construction time is three to six weeks.

As needed, suitable sized substrate material (1 to 6 inches) will be placed in-channel throughout the length of the bridge to simulate a natural stream bottom. Larger rock and boulders (1 to 2 feet in diameter) will be strategically placed to provide cover and pocket water, and to improve stream bottom stability and "anchor" the substrate.

Standard best management practices and design criteria will be employed to reduce resource impacts. These measures include cleaning equipment before entering the work site; storing fuel outside of the RHCA; and using erosion control measures such as sediment fences, sediment traps, and mulching. See Appendix A for a complete list.

Fish will be captured by electrofishing and removed upstream of the Project area prior to de-watering and construction activity below mean high water (East Fork American River). Captured fish will be placed in a dark colored five gallon bucket and will be moved immediately upstream to suitable habitat (e.g., pool or area that provides cover and flow refuge). Temporary block nets will be in place to prevent fish migrating or entering the culvert replacement site prior to dewatering. Fish capture (electrofishing) will follow NOAA Fisheries guidelines (National Marine Fisheries Service 2000). The appropriate fish collection permits will be obtained from NOAA Fisheries and Idaho Department of Fish and Game (IDFG). If bull trout are sampled during monitoring or while conducting project work, the Service will be notified.

An upstream "V" rock check dam will be constructed in the mainstem American River immediately upstream from bridge. The purpose of the check dam will be to maintain the existing pool and to reduce adverse bank erosion. Large woody debris and habitat rocks will be placed in the pool to provide instream cover. This work will occur during between July 1 and August 15.

3. Telephone Creek Road to ATV Trail Conversion and Channel Re-Connect Project

The Bureau proposes to convert 0.9 mile of road to an ATV trail and to construct a new stream channel that will re-connect Telephone Creek with American River. The current road width will be reduced to 60 inches and measures to improve drainage will be implemented as necessary. Hardening and reconstructing stream channels (approximately 30 to 50 feet) will take place at fords to insure streams stay in-channel rather than flowing onto road surfaces.

The channel reconnect will include constructing approximately 340 feet of new channel and installation of a six foot diameter culvert (partially buried 35 percent) at the American River road crossing. The new channel will not be connected to the existing channel until after new channel construction and culvert installation are completed. This will allow construction to be completed under dry conditions and reduce the risk of sediment delivery. As needed, excessive subsurface flows will be pumped to an off-channel settling basin and filtered through straw and natural

vegetation before reaching the stream. The settling basin will consist of straw bales and straw laid out on the ground so water can filter through the straw to prevent sediment from reaching the stream channel.

Upon completion of the new channel, approximately 200 feet of existing channel will be abandoned and the existing channel will be diverted into the new channel. The abandoned channel will be seeded and planted with native species.

The road to ATV trail conversion and channel reconnect project is planned for 2006 or 2007, between July 1 and October 15. The project will take three to four weeks for completion.

Standard best management practices and design criteria will be employed to reduce resource impacts including cleaning equipment before entering the work site; storing fuel outside of the RHCA; and using erosion control measures such as sediment fences, sediment traps, and mulching. Any required fish removal/salvage will follow NOAA guidelines (NMFS 2000), and the Bureau must possess a collecting permit issued by the state of Idaho. See Appendix A for a complete list of design criteria.

4. Monitoring

The Bureau will conduct implementation and effectiveness monitoring for all components of the Project. In addition the Bureau will monitor fish populations and fish habitat in the action area. See Appendix A for a complete description of these activities.

II. STATUS OF THE SPECIES

A. Listing History

On June 10, 1998, the Service issued a final rule listing the Columbia River and Klamath River populations of bull trout as threatened (63 FR 31647) under the authority of the Endangered Species Act (Act). With the listing as threatened of the Jarbidge River population (64 FR 17110, November 1, 1999) and the Coastal-Puget Sound and St. Mary-Belly River populations (64 FR 58910, November 1, 1999), all bull trout in the coterminous United States received full protection under the Act. These five populations listed in the final rule were identified as distinct population segments (DPS).

In recognition of the scientific basis for the identification of bull trout DPSs (i.e., each DPS is unique and significant), the final listing rule specifies that these DPSs will serve as interim recovery units for the purposes of consultation and recovery planning until an approved recovery plan is completed. On that basis, the geographic scope of jeopardy analyses for actions under formal consultation will be at the DPS level as opposed to the entire conterminous United States range of bull trout. This Opinion documents our analysis of effects to the Columbia River DPS of bull trout.

B. Reasons for Listing

Though wide-ranging in parts of Oregon, Washington, Idaho, and Montana, bull trout in the interior Columbia River basin presently occur in only about 45 percent of the historical range (Quigley and Arbelbide 1997; Rieman et al. 1997). Declining trends and associated habitat loss and fragmentation have been documented rangewide (Bond 1992; Schill 1992; Thomas 1992; Ziller 1992; Rieman and McIntyre 1993; Newton and Pribyl 1994; Idaho Department of Fish and Game in litt. 1995). Several local extirpations have been reported, beginning in the 1950s (Rode 1990; Ratliff and Howell 1992; Donald and Alger 1993; Goetz 1994; Newton and Pribyl 1994; Berg and Priest 1995; Light et al. 1996; Buchanan and Gregory 1997; Washington Department of Fish and Wildlife 1997).

The combined effects of habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, angler harvest and poaching, entrainment into diversion channels and dams, and introduced nonnative species (e.g., brook trout, *Salvelinus fontinalis*) have resulted in declines in bull trout distribution and abundance. Land and water management activities such as dams and other diversion structures, forest management practices, livestock grazing, agriculture, road construction and maintenance, mining, and urban and rural development continue to degrade bull trout habitat and depress bull trout populations (Service 2002).

C. Species Description

Bull trout *(Salvelinus confluentus)*, member of the family Salmonidae, are char native to the Pacific Northwest and western Canada. The bull trout and the closely related Dolly Varden (*Salvelinus malma*) were not officially recognized as separate species until 1980 (Robins et al. 1980). Bull trout historically occurred in major river drainages in the Pacific Northwest from the southern limits in the McCloud River in northern California and the Jarbidge River in Nevada to the headwaters of the Yukon River in the Northwest Territories, Canada (Cavender 1978; Bond 1992). To the west, bull trout range includes Puget Sound, coastal rivers of British Columbia, Canada, and southeast Alaska (Bond 1992). Bull trout are wide-spread throughout the Columbia River basin, including its headwaters in Montana and Canada and also occur in the Klamath River basin of south central Oregon. East of the Continental Divide, bull trout are found in the headwaters of the Saskatchewan River in Alberta and the MacKenzie River system in Alberta and British Columbia (Cavender 1978; Brewin and Brewin 1997).

D. Life History

Bull trout exhibit resident and migratory life-history strategies through much of the current range (Rieman and McIntyre 1993). Resident bull trout complete their entire life cycle in the streams where they spawn and rear. Migratory bull trout spawn and rear in streams for one to four years before migrating to either a lake (adfluvial), river (fluvial), or in certain coastal areas, to saltwater (anadromous), where they reach maturity (Fraley and Shepard 1989; Goetz 1989). Resident and migratory forms often occur together and it is suspected that individual bull trout may give rise to offspring exhibiting both resident and migratory behavior (Rieman and McIntyre 1993).

Bull trout have more specific habitat requirements than other salmonids (Rieman and McIntyre 1993). Watson and Hillman (1997) concluded that watersheds must have specific physical characteristics to provide habitat requirements for bull trout to successfully spawn and rear, and that the characteristics are not necessarily ubiquitous throughout these watersheds resulting in patchy distributions even in pristine habitats.

Bull trout are found primarily in colder streams, although individual fish are migratory in larger, warmer river systems throughout the Columbia River basin (Fraley and Shepard 1989; Rieman and McIntyre 1993, 1995; Buchanan and Gregory 1997; Rieman et al. 1997). Water temperature above 15°C (59°F) is believed to limit bull trout distribution, which may partially explain the patchy distribution within a watershed (Fraley and Shepard 1989; Rieman and McIntyre 1995). Spawning areas are often associated with cold-water springs, groundwater infiltration, and the coldest streams in a given watershed (Pratt 1992; Rieman and McIntyre 1993; Rieman et al. 1997). Goetz (1989) suggested optimum water temperatures for rearing of about 7 to 8°C (44 to 46°F) and optimum water temperatures for egg incubation of 2 to 4°C (35 to 39°F).

All life history stages of bull trout are associated with complex forms of cover, including large woody debris, undercut banks, boulders, and pools (Oliver 1979; Fraley and Shepard 1989; Goetz 1989; Hoelscher and Bjornn 1989; Sedell and Everest 1991; Pratt 1992; Thomas 1992; Rich 1996; Sexauer and James 1997; Watson and Hillman 1997). Jakober (1995) observed bull trout overwintering in deep beaver ponds or pools containing large woody debris in the Bitterroot River drainage, Montana, and suggested that suitable winter habitat may be more restrictive than summer habitat. Bull trout prefer relatively stable channel and water flow conditions (Rieman and McIntyre 1993). Juvenile and adult bull trout frequently inhabit side channels, stream margins, and pools with suitable cover (Sexauer and James 1997).

The size and age of bull trout at maturity depends upon life-history strategy. Growth of resident fish is generally slower than migratory fish; resident fish tend to be smaller at maturity and less fecund (Fraley and Shepard 1989; Goetz 1989). Bull trout normally reach sexual maturity in 4 to 7 years and live as long as 12 years. Repeat and alternate year spawning has been reported, although repeat spawning frequency and post-spawning mortality are not well known (Leathe and Graham 1982; Fraley and Shepard 1989; Pratt 1992; Rieman and McIntyre 1996).

Bull trout typically spawn from August to November during periods of decreasing water temperatures. Migratory bull trout frequently begin spawning migrations as early as April, and have been known to move upstream as far as 250 kilometers (km) (155 miles (mi)) to spawning grounds (Fraley and Shepard 1989). Depending on water temperature, incubation is normally 100 to 145 days (Pratt 1992), and after hatching, juveniles remain in the substrate. Time from egg deposition to emergence may exceed 200 days. Fry normally emerge from early April through May depending upon water temperatures and increasing stream flows (Pratt 1992; Ratliff and Howell 1992).

Bull trout are opportunistic feeders with food habits primarily a function of size and life-history strategy. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects,

macro-zooplankton and small fish (Boag 1987; Goetz 1989; Donald and Alger 1993). Adult migratory bull trout are primarily piscivores, known to feed on various fish species (Fraley and Shepard 1989; Donald and Alger 1993).

E. Population Dynamics

The draft bull trout Recovery Plan (Service 2002) defined core areas as groups of partially isolated local populations of bull trout with some degree of gene flow occurring between them. Based on this definition, core areas can be considered metapopulations. A metapopulation is an interacting network of local populations with varying frequencies of migration and gene flow among them (Meefe and Carroll 1994). In theory, bull trout metapopulations (core areas) can be composed of two or more local populations, but Rieman and Allendorf (2001) suggest that for a bull trout metapopulation to function effectively, a minimum of between five and 10 local populations are required. Bull trout core areas with fewer than five local populations are at increased risk of local extirpation, core areas with between five and 10 local populations are at intermediate risk, and core areas with more than 10 interconnected local populations are at diminished risk (Service 2002).

The presence of a sufficient number of adult spawners is necessary to ensure persistence of bull trout populations. In order to avoid inbreeding depression, it is estimated that a minimum of 100 spawners is required. Inbreeding can result in increased homozygosity of deleterious recessive alleles which can in turn reduce individual fitness and population viability (Whitesel et al. 2004). For persistence in the longer term, adult spawning fish are required in sufficient numbers to reduce the deleterious effects of genetic drift and maintain genetic variation. For bull trout, Rieman and Allendorf (2001) estimate that approximately 1,000 spawning adults are necessary for maintaining genetic variation. Many local bull trout populations individually do not support 1,000 spawners, but this threshold may be met by the presence of smaller interconnected local populations within a core area

For bull trout populations to remain viable (and recover) natural productivity should be sufficient for the populations to replace themselves from generation to generation. A population that consistently fails to replace itself is at an increased risk of extinction. Since estimates of population size are rarely available, the productivity or population growth rate is usually estimated from temporal trends in indices of abundance at a particular life stage. For example, redd counts are often used as an indicator of a spawning adult population. The direction and magnitude of a trend in an index can be used as a surrogate for growth rate.

Long-term survival of bull trout is also dependent upon connectivity among local populations. Although bull trout are widely distributed over a large geographic area, they exhibit a patchy distribution even in pristine habitats (Rieman and McIntyre 1993). Increased habitat fragmentation reduces the amount of available habitat and increases isolation from other populations of the same species (Saunders et al. 1991). Burkey (1989) concluded that when species are isolated by fragmented habitats, low rates of population growth are typical in local populations and their probability of extinction is directly related to the degree of isolation and fragmentation. Without sufficient immigration, growth of local populations may be low and

probability of extinction high. Migrations also facilitate gene flow among local populations because individuals from different local populations interbreed when some stray and return to non-natal streams. Local populations that are extirpated by catastrophic events may also become reestablished in this manner.

In summary, based on the works of Rieman and McIntyre (1993) and Rieman and Allendorf (2001), the draft bull trout Recovery Plan identified four elements to consider when assessing long-term viability (extinction risk) of bull trout populations: 1) number of local populations, 2) adult abundance (defined as the number of spawning fish present in a core area in a given year); 3) productivity, or the reproductive rate of the population; and 4) connectivity (as represented by the migratory life history form).

F. Status and Distribution

1. Columbia River Distinct Population Segment (DPS)

The Columbia River DPS includes bull trout residing in portions of Oregon, Washington, Idaho, and Montana. Bull trout are estimated to have occupied about 60 percent of the Columbia River Basin, and presently occur in 45 percent of the estimated historical range (Quigley and Arbelbide 1997). The Columbia River DPS has declined in overall range and numbers of fish (63 FR 31647). Although some strongholds still exist with migratory fish present, bull trout generally occur as isolated local populations in headwater lakes or tributaries where the migratory life history form has been lost. Though still widespread, there have been numerous local extirpations reported throughout the Columbia River basin. In Idaho, for example, bull trout have been extirpated from 119 reaches in 28 streams (Idaho Department of Fish and Game in litt. 1995).

Recent literature (Spruell et al. 2003) provides updated information on the genetic population structure of bull trout across the northwestern United States and indicates a need to further evaluate the distinct population structure of bull trout. Based on analysis of four microsatellite loci, Spruell et al. (2003) suggested that there are three major genetically differentiated groups (lineages) of bull trout represented in the Columbia River DPS. They described these as Coastal, Snake River, and Upper Columbia populations. Whitesel et al. (2004) used this and other information to describe four Conservation Units (Upper Columbia, Snake River, Klamath River, and Coastal-Puget Sound) that are thought to represent the best estimate for delineation of areas that are necessary to ensure evolutionary persistence of bull trout.

2. Clearwater River Management Unit

The draft bull trout Recovery Plan (Service 2002) identified 22 recovery units within the Columbia River DPS. These units are now referred to as management units (Service 2004). Management units are groupings of bull trout with historical or current gene flow within them and were designated to place the scope of bull trout recovery on smaller spatial scales than the larger DPS.

Achieving recovery goals within each management unit is critical to recovering the Columbia River DPS. Recovering bull trout in each management unit will maintain the overall distribution of bull trout in their native range. Individual core areas are the foundation of management units and conserving core areas and their habitats within management units preserves the genotypic and phenotypic diversity that will allow bull trout access to diverse habitats and reduce the risk of extinction from stochastic events. The continued survival and recovery of each individual core area is critical to the persistence of management units and their role in the recovery of a DPS (Service 2002).

Bull trout are distributed throughout most of the large rivers and associated tributary systems within the Clearwater River management unit (Clearwater Subbasin Summary 2001) and exhibit adfluvial, fluvial, and resident life history patterns. There are two naturally occurring adfluvial bull trout populations within the Clearwater River management unit; one is associated with Fish Lake in the upper North Fork Clearwater River drainage, and the other is associated with Fish Lake in the Lochsa River drainage (CBBTTAT 1998a, CBBTTAT 1998b). The Bull Trout Recovery Team has identified five core areas and 36 local bull trout populations within the Clearwater management unit (Service 2002, 2004). The core areas include the North Fork Clearwater River, Lochsa River, South Fork Clearwater River, Selway River, and Lower and Middle Fork Clearwater Rivers.

3. South Fork Clearwater River Core Area

Core areas are the building blocks for conserving the bull trout's evolutionary legacy, and are appropriate units of analysis by which threats to bull trout and recovery standards should be measured (70 FR 56258, September 26, 2005). As discussed above, four factors are used to examine the risk of extinction for a core area: number of local populations, adult abundance, productivity, and connectivity. Bull trout are currently known to use spawning and rearing habitat in five stream complexes within the South Fork Clearwater River management unit (i.e., local populations). These local populations include Red River, Crooked River, Newsome Creek, Tenmile Creek and Johns Creek. Because this core area does not have (and is unlikely to achieve) 10 local populations, the core area is at moderate risk of extinction from stochastic events. The loss of one local population in this core area may threaten its long-term viability and recovery. Current abundance and distribution of bull trout in the core area are considered lower than historic levels. It is estimated that there at least 500 spawners present (Service 2002) so this core area is at an intermediate risk of genetic drift. Population trend data is lacking for the core area, so the Recovery Plan determined that until such data is available, the core area is at an increased risk of extinction (Service 2002, 2004). There is an extremely low incidence of fluvial migratory adults in the core area (Forest Service 1999), as well as resident adults (D. Mays, personal communication, January 30, 2006), but migratory bull trout persist in some local populations so the core area is at an intermediate risk of extinction due to loss of connectivity (Service 2002).

Roads, forestry, grazing, residential development, brook trout, and angling threaten bull trout in this core area. Other limiting factors include water temperature, sediment, instream cover, watershed disturbances (includes upland disturbances such as mining, timber harvest, and roading), habitat degradation, exotics/introgression, harvest, and connectivity (Service 2004).

G. Consulted-on Effects within the DPS

Consulted-on effects are those effects that have been analyzed through section 7 consultation as reported in a biological opinion. These effects are an important component of objectively characterizing the current condition of the species. To assess consulted-on effects to bull trout, we analyzed all of the biological opinions received by the Region 1 and Region 6 Offices, from the time of listing until August 2003; this summed to 137 biological opinions. Of these, 124 biological opinions (91 percent) applied to activities affecting bull trout in the Columbia Basin DPS. The geographic scale of these consultations varied from individual actions (e.g., construction of a bridge or pipeline) within one basin to multiple-project actions occurring across several basins.

Our analysis showed that we consulted on a wide array of actions that had varying level of effects. Many of the actions resulted in only short-term adverse effects – some with long-term beneficial effects. Some of the actions resulted in long-term adverse effects. No actions that have undergone consultation were found to appreciably reduce the likelihood of survival and recovery of the bull trout. Furthermore no actions that have undergone consultation were anticipated to result in the loss of local populations of bull trout.

H. Conservation Needs

Recovery for bull trout will entail reducing threats to the long-term persistence of populations and their habitats, ensuring the security of multiple interacting groups of bull trout, and providing habitat conditions and access to them that allow for the expression of various life-history forms (Service 2002). The draft Bull Trout Recovery Plan identifies the following tasks needed for achieving recovery: 1) protect, restore, and maintain suitable habitat conditions for bull trout; 2) prevent and reduce negative effects of nonnative fishes and other nonnative taxa on bull trout; 3) establish fisheries management goals and objectives compatible with bull trout recovery; 4) characterize, conserve, and monitor genetic diversity and gene flow among local populations of bull trout; 5) conduct research and monitoring to implement and evaluate bull trout recovery activities, consistent with an adaptive management approach using feedback from implemented, site-specific recovery tasks; 6) use all available conservation programs and regulations to protect and conserve bull trout and bull trout habitats; and 7) assess the implementation of bull trout recovery by management units, and revise management unit plans based on evaluations.

I. Critical Habitat

The Service issued a final rule designating critical habitat for bull trout range wide on September 26, 2005. The designation includes 4,813 miles of stream or shoreline and 143,218 acres of lake or reservoir. We designated areas as critical habitat that 1) have documented bull trout occupancy within the last 20 years, 2) contain features essential to the conservation of the bull

trout, 3) are in need of special management, and 4) were not excluded under section 4(b)(2) of the Act. The Final Rule excluded from designation those federally managed areas covered under PACFISH, INFISH, the Interior Columbia Basin Ecosystem Management Project, and the Northwest Forest Plan Aquatic Conservation Strategy. The Service determined that these strategies provide a level of conservation and adequate protection and special management for the primary constituent elements of critical habitat at least comparable to that achieved by designating critical habitat. Areas managed under these strategies do not meet the statutory definition of critical habitat (i.e., areas requiring special management considerations) and were therefore excluded. The excluded areas include much of the proposed critical habitat in Idaho; the final rule only designates 294 miles of stream/shoreline and 50,627 acres of reservoirs or lakes. No designated critical habitat is present in the action area.

III. ENVIRONMENTAL BASELINE

The environmental baseline is defined as the current habitat condition including the past and present impacts on bull trout of all Federal, state, or private actions, and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impacts of state or private actions that are contemporaneous with the consultation in process.

A. Status of the Species in the Action Area

Historically, the American River watershed likely supported a robust spawning and rearing bull trout population (Service 2002). Currently, both migratory and resident bull trout are present in the American River watershed although distribution within the watershed is not well known. Bull trout have been documented in Lower, Middle, and Upper American River, East Fork American River, Kirks Fork, and Flint Creek. Available information indicates that East Fork American River potentially provides the only spawning and early rearing areas for bull trout in the watershed. Recent fish surveys conducted by the Forest Service, the Bureau, and Idaho Department of Fish and Game (1996 to 2003) documented bull trout in mainstem American River, East Fork American River, and lower Kirks Fork. The draft bull trout Recovery Plan identifies the American River as a potential local population (Service 2002). Bull trout have not been documented in Telephone Creek.

In conclusion, although bull trout occur in the American River, their numbers appear to be low. At the location of any one component of the Project (e.g., instream structure or culvert replacement), the Bureau predicts zero to one bull trout may be present at any given time. Exact numbers are not known but the Service assumes that bull trout will be present during Project implementation.

B. Factors Affecting the Species in the Action Area

As previously described in the Status of the Species section of this Opinion, bull trout distributions, abundance, and habitat quality have declined rangewide primarily from the combined effects of habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, angler harvest, poaching, entrainment, and introduced nonnative fish species.

Land and water management activities that depress bull trout populations and degrade habitat include dams and other water diversion structures, forest management practices, livestock grazing, agriculture, road construction and maintenance, mining, and urban and rural development. All of these activities have occurred or are occurring in the American River watershed and impact bull trout in the action area.

The Assessment provides the status of habitat indicators for the American River. For American River, 20 indicators are given a low rating including riparian vegetation condition, floodplain connectivity, temperature, physical barriers, cobble embeddedness, percent surface fines, large woody debris, pool frequency, and pool quality (Assessment pp. 88-89). The Service assumes that the number of habitat indicators rated as being in low condition indicates the extent of habitat degradation within a given stream. Based on the number of low indicators, bull trout habitat in American River is assessed to be degraded and suboptimal.

As stated previously American River is estimated to be at 40 to 60 percent of aquatic habitat potential and winter rearing capacity is well below objective. Winter rearing capacity has been identified as a primary limiting factor.

IV. EFFECTS OF THE ACTION ON BULL TROUT

A. Direct and Indirect Effects

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 are still reasonably certain to occur (50 CFR §402).

Beneficial effects to bull trout are expected from project implementation in terms of improvements to habitat quality and habitat access. A short-term increase in suspended and deposited sediment is the main adverse effect expected from the Project. Project components with the greatest potential for sediment production and delivery are instream pool excavation, the culvert replacement at East Fork American, and Telephone Creek channel reconnect. Continuing ground disturbing activities during periods of heavy precipitation may exacerbate adverse sediment effects.

Monitoring reports for culvert installations can provide an estimate of the concentration, extent, and duration of Project sediment effects. These reports show a range of downstream suspended sediment concentrations. Thompson (1995) reported that during one six hour installation, mean and peak concentrations were 344 and 950 milligrams per liter (mg/l) higher than upstream concentrations. Twenty-six kilograms (0.03 tons) of sediment was introduced into the stream. Mean sediment concentrations following precipitation events was 340 mg/l higher than upstream of the site with a peak concentration near 2,250 mg/l. Unfortunately, neither the duration nor downstream extent of these sediment concentrations was reported.

Sediment was monitored during a culvert replacement on the Bitterroot National Forest (Forest Service 2003). Monitoring showed that 1.7 tons of sediment was introduced into the stream which was at a baseflow discharge of 1.8 cubic feet per second (cfs). Ninety-five percent of the sediment was introduced into the stream within two hours of removing the diversion and directing flow through the new culvert. A thin layer of sediment was deposited over 95 percent of the stream bed within 40 feet of the culvert outlet. The stream bottom was disturbed for a distance of 10 feet upstream of the culvert. Sediment concentrations dropped to pre-replacement levels within 24 hours. Sediment deposition was visible approximately 150 feet downstream of the culvert. Similar monitoring on the Lolo National Forest (Forest Service 2000) reported that most of the sediment released during the culvert replacement "appeared to settle out in the first several hundred feet downstream of the project."

These monitoring results indicate that suspended sediment concentrations downstream of the culvert replacement site will remain elevated for up to 24 hours but will probably peak within two to three hours at levels as high 950 mg/l. Sedimentation on the stream bottom will occur up to 300 feet downstream of the site but the sediment plume will probably extend further.

Monitoring of in-channel work on the Nez Perce National Forest showed that the highest sediment concentrations immediately downstream of the where machinery was working – concentrations ranged from 270 to 623 mg/l (Forest Service 2002). Concentrations in the mixing zone ranged from 69 to 190 mg/l. Visible suspended sediment was observed for no more than 10 minutes following disturbance, although it is not clear from the report how long the machine worked and how long associated suspended sediment was produced.

Based on the work of Newcombe and Jensen (1996) sublethal adverse effects are expected for juvenile and adult salmonids at suspended sediment concentrations as low as 55 mg/l at exposure times of three hours. This level of exposure may produce short-term reductions in feeding rates and feeding success, and minor physiological stress. Compared with other salmonids, bull trout are more sensitive to sediment and require the lowest suspended sediment levels (Bash et al. 2001). Based on the monitoring results summarized above, the Service anticipates that bull trout present in the action area during Project implementation may be adversely affected by exposure to suspended sediment concentrations exceeding 55 mg/l for durations of three hours or more.

The extent and magnitude of sediment effects to bull trout depend on numerous factors including age of fish (eggs, larvae, and fry are generally more susceptible (Bash et al. 2001)), suspended sediment concentration, duration of exposure, stream flow, precipitation events, and the efficacy of Project erosion control measures. Given the predicted absence of bull trout eggs, alevins, and fry, and level of suspended sediment exposure (concentration and duration), no bull trout mortality is expected from the Project.

Because no bull trout spawning or early rearing occurs in the action area, direct effects of deposited sediment on bull trout will be discountable. There may be a short-term reduction in macro-invertebrate abundance (potential bull trout food resource) in areas of sediment deposition

(Henley et al. 2000). However, deposition areas will be relatively small and localized in the Project area so effects on bull trout prey availability or foraging efficiency are expected to be insignificant. Additionally, high flow events during the spring following Project implementation are expected to flush any deposited sediment from the action area.

Project design criteria and turbidity monitoring (Appendix A) will be used to minimize sediment effects and prevent exposure from reaching levels where bull trout mortality might occur. These design criteria include the use of erosion control measures such as sediment fences, sediment traps, and mulching. After construction, road fill areas will be armored with riprap and erosion control fabric. Disturbed areas will be seeded with native species and mulched. Excavation of pools will be staggered over three to four years so the total amount of suspended sediment generated per year will be reduced. Additionally, if feasible, pool excavation will be done in early July when flows are higher than later in the season. When compared to low flows, higher stream discharge has a greater capacity for transporting and diluting suspended sediment and may thereby reduce the level of exposure for bull trout.

Other potential adverse effects to bull trout may result from the introduction of toxic fuels, lubricants, coolants, or hydraulic fluids into the stream through accidental spills or equipment leaks. The risk of these effects will be minimized because equipment will be checked for leaks daily and fuel storage and refueling will occur at the greatest possible distance from surface water. Washout water from cleaning concrete equipment and tools may also be toxic to bull trout because of its very high alkalinity.

Additionally, bull trout may be injured or killed in the process of collecting and removing them from the culvert replacement site. The use of electrofishing or other methods to remove bull trout from instream work sites requires that the Bureau possess a current Scientific Collecting Permit issued by Idaho Department of Fish and Game, and follow all associated requirements. The Service has already analyzed the effect of work conducted under the Department's permits in a February 2000 intra-Service Biological Opinion (Service 2000).

Although the Project is expected to have some adverse impacts on bull trout in the action area, beneficial effects are anticipated as well. Potential direct beneficial effects for bull trout include access to previously unavailable habitat and improvement in habitat conditions. Improved habitat conditions may indirectly benefit bull trout by increasing the abundance of salmonid prey species.

B. Effects of Interrelated or Interdependent Actions

The Service did not identify any interrelated or interdependent actions associated with the Project.

V. CUMULATIVE EFFECTS

Cumulative effects are 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.

Within the action area there are numerous state, tribal, local, and private actions that potentially affect bull trout. Many of the categories of on-going activities with potential effects to bull trout were identified in the Status of the Species section of this Opinion. These activities include timber harvest and road building, grazing, water diversion, residential development, and agriculture. City, county, and state transportation departments conduct annual herbicide spraying of rights-of ways in the action area with unknown concentrations of herbicides potentially delivered to bull trout streams.

Illegal and inadvertent harvest of bull trout is also considered a cumulative effect. Harvest can occur through both misidentification and deliberate catch. Schmetterling and Long (1999) found that only 44 percent of the anglers they interviewed in Montana could successfully identify bull trout. Similarly Polzin and Fredenberg (2005) surveyed anglers at Swan Lake, Montana, and found that only about 54 and 26 percent of the respondents could correctly identify adult and juvenile bull trout respectively. Being aggressive piscivores, bull trout readily take lures or bait (Ratliff and Howell 1992). Idaho Department of Fish and Game reports that, during the 2002 salmon and steelhead fishing seasons, 400 bull trout were caught and released in the regional (Clearwater administrative region) waters of the Salmon and Snake Rivers (Idaho Department of Fish and Game 2004). Spawning bull trout are particularly vulnerable to harvest because the fish are easily observed during autumn low flow conditions. Hooking mortality rates range from 4% for nonanadromous salmonids with the use of artificial lures and flies (Schill and Scarpella 1997) to a 60% worst case scenario for bull trout taken with bait (Idaho Department of Fish and Game 2001). Thus, even in cases where bull trout are released after being caught some mortality can be expected.

VI. CONCLUSION

The Service has reviewed the current status of bull trout, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects. It is the Service's biological opinion that the Project is not likely to jeopardize the continued existence of the South Fork Clearwater River core area or the Columbia River Distinct Population Segment (DPS) of bull trout, and therefore the species as listed in the final rule (64 FR 58932, November 1, 1999).

The Service concludes that direct effects to bull trout would be limited to short-term disturbance, feeding rate reduction, and physiological distress resulting in take in the form of harm or harassment. These anticipated effects should be minimized by the design criteria incorporated into the Project proposal. The Service expects that the numbers, distribution, and reproduction of bull trout in the action area, the South Fork Clearwater core area, the Clearwater River management unit, or in the Columbia Basin DPS will not be significantly changed as a result of

this Project. Reproduction is not expected to be appreciably altered because no bull trout spawning has been documented in the action area. Connectivity between bull trout habitat and local populations in the South Fork Clearwater River core area and those in the Clearwater River recovery unit will not be significantly affected. As such, we have concluded that the survival and recovery of bull trout populations will not be jeopardized by Project activities. Project implementation is expected to provide long-term benefits to bull trout in the American River watershed in the long-term through improvements to habitat condition and access.

There is no designated critical habitat in the action area so none will be affected.

VII. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species 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.

The Bureau has a continuing duty to regulate the activity covered by this incidental take statement. If the Bureau fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Bureau must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

A. Amount or Extent of Take

Based on survey data, the Service assumes the presence of bull trout in the action area, however it is difficult for us to anticipate the exact number of individual bull trout that will be taken as a result of implementation of the proposed action. Therefore, we will use the amount of habitat affected as a surrogate. We anticipate that all bull trout in the immediate vicinity of pool excavation sites, of the culvert replacement site at East Fork American River, and the Telephone Creek stream reconnect site and downstream 300 feet (i.e., the assumed extent of downstream suspended sediment effects) from each of these sites, will be subject to take in the form of

harassment or harm from direct exposure to increased levels of suspended sediment and turbidity expected from Project implementation. Additionally if the use of concrete is required, bull trout may be harmed by exposure to concrete washout water if introduced into bull trout habitat. Design criteria incorporated into the Project, including turbidity monitoring, are expected to significantly reduce the level of anticipated take.

Incidental take of bull trout is only anticipated to occur between July 1 and October 15, 2006, to 2009. Incidental take will be limited to bull trout in the American River in the vicinity of the check dams, culvert replacement at East Fork American River, and Telephone Creek. The life stages expected to be harmed or harassed include adult and subadult fish. The Service expects no direct lethal take of bull trout. If the incidental take anticipated by this document (i.e., harm or harassment to bull trout within the action area) is exceeded, Project activities associated with this exceedance will cease and the Bureau will immediately contact the Service to determine if consultation should be reinitiated. Authorized take will be exceeded if Project activities result in bull trout mortality, or if suspended sediment exceeds exposure (concentration and duration) levels determined to have more than minor physiological effects to bull trout within 300 feet downstream of the culvert replacement site. Authorized take will also be exceeded if instream work occurs outside of the July 1 to October 15 work window or extends beyond 2009.

If bull trout are present in the action area, they may be injured or killed in the process of collecting and removing fish prior to instream work. This take has already been anticipated and analyzed in the Service's Biological Opinion for Idaho Department of Fish and Game's Scientific Collecting Permit (Service 2000), and will not be addressed in this Opinion.

B. Effect of the Take

The Columbia River DPS comprises 22 management units including the Clearwater River unit (Service 2002). The Clearwater management unit contains five core areas with 36 local populations. The South Fork Clearwater River core area contains five local populations and three potential local populations including the population in American River. The mainstem American River provides feeding, migrating, and overwintering habitat for bull trout. Because bull trout spawning has not been documented in the mainstem American River, the Service expects that the Project will not negatively affect bull trout reproduction. Migrating or overwintering bull trout may be subject to short term sediment effects and take in the form of harm or harassment. Anticipated take (harm or harassment) may be reduced because the Project includes design criteria to avoid and reduce adverse effects. The probability that the proposed action will eliminate any local or potential local populations in the core area is insignificant. Local bull trout densities and distribution are not expected to be significantly affected. It is unlikely that the proposed action would impair productivity or population numbers of bull trout in the South Fork Clearwater River core area, Clearwater management unit, or the Columbia River DPS. Long-term beneficial effects are expected in terms of improvements in bull trout habitat condition and access to additional habitat in East Fork American River.

C. Reasonable and Prudent Measures

The Service believes that the following reasonable and prudent measure is necessary and appropriate to minimize take resulting from Project implementation:

- Minimize the potential for harm or harassment of bull trout and disruption of riparian and aquatic habitat from Project activities.

D. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Bureau must comply with the following terms and conditions, which implements the reasonable and prudent measure described above and outline required reporting and monitoring requirements. These term and conditions are non-discretionary.

1a. If the use of concrete is needed during implementation, the Bureau will restrict washout of concrete trucks and equipment to locations that will minimize the risk of introducing wastewater to bull trout habitat.

1b. The Bureau will ensure that all erosion and sediment control measures are maintained until construction activities are complete and disturbed areas are stabilized.

1c. Project activities shall cease during periods of heavy precipitation where run-off could potentially cause erosion and sediment delivery to bull trout habitat in the action area.

E. Monitoring

1. The Bureau shall provide an annual report detailing Project implementation progress and baseline updates which will include results of implementation and effectiveness monitoring, any bull trout surveys conducted in the Project area, a summary of bull trout observed or handled under the state Collecting Permit, as well as the results of monitoring revegetation efforts. The monitoring report will be sent to the Snake River Fish and Wildlife Office, 1387 South Vinnell Way, Suite 368, Boise, Idaho 83709, by March 15 or other mutually agreed upon date.

2. Upon locating any dead, injured, or sick bull trout, or upon observing destruction of redds as a result of Project activities such activities shall be terminated and notification must be made within 24 hours to the Service's Division of Law Enforcement at (208) 378-5333. Additional protection measures may be developed through discussions with the Service.

3. During Project implementation the Bureau shall promptly notify the Service of any emergency or unanticipated situations arising that may be detrimental for bull trout relative to the proposed activity.

VIII. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act requires 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 intended to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends that the Bureau implement the following conservation measures.

1. In order to better assess sediment effects on bull trout from future instream projects, take suspended sediment samples at the turbidity monitoring stations established for the Project. Although turbidity and suspended sediment concentration are correlated, the relationship varies between individual streams and watersheds (Bash et al. 2001, Lewis et al. 2002, Rowe et al. 2003). Measuring suspended sediment will assist in making stream specific correlations between suspended sediment concentrations and turbidity.

2. Continue to evaluate opportunities for selectively removing brook trout in areas where they coexist with bull trout and assess fish passage projects for their potential to facilitate brook trout access to isolated bull trout populations.

3. Continue to promote recovery of bull trout by identifying additional habitat restoration and fish passage opportunities, and implementing these actions in the near-term.

4. Continue to survey and monitor bull trout populations and habitat.

5. When re-establishing riparian vegetation, focus on establishing native woody vegetation, such as willows, where appropriate.

To keep the Service informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification on implementation of any conservation recommendations.

IX. REINITIATION NOTICE

This concludes formal consultation on the American River Restoration 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 retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) 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; 3) the agency action is subsequently modified in a manner that

causes an effect to the listed species or critical habitat not considered in this Opinion; or 4) 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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APPENDIX A. PROJECT SPECIFICATIONS AND DESIGN CRITERIA (from Assessment).

A. Instream structures

1. General Work Specifications for Instream Fish Habitat Improvement Projects

a. Approximately 3.4 miles of fish habitat enhancement work is proposed. Instream project work would be conducted over a period of two to four years.

b. Instream project work would occur from July 1 through August 15.

c. All equipment (e.g., excavator) used for construction activity would be cleaned and any leaks repaired prior to arriving at the project. Equipment will be inspected daily for leaks or accumulations of grease, and fix any identified problems before entering areas that drain directly to stream. The furthest practical distance from river on site would be used for maintenance of equipment.

d. No storage of fuel would be authorized within RHCA. Refueling will be accomplished with the use of slip-on fuel tanks and such tanks will be less than 150 gallons. The furthest practical distance from river on site would be used for refueling of machinery (e.g., 50 – 200 feet).

e. Construction activity would minimize adverse effects to riparian habitats.

f. Where practical, all work would be accomplished with excavator operating from streambank (above water line). Because of width of river, it may be necessary to have excavator operate within stream channel and/or cross river to facilitate placement of rocks for check dams, placement of woody debris, or placement of habitat rocks.

g. Streambank and other disturbed areas would be seeded and planted primarily with native species (see Table 1 for a list of preferred species). Seedings and plantings would take place during favorable wet conditions, during the fall or spring. As needed, mulching would be used to provide for seed cover and prevention of adverse soil erosion. Because of the variability of site characteristics within the project area (e.g., deep soils to dredge tailings); soil, current vegetation, availability of native species, and species suitability for site would be evaluated prior to seeding or planting. Sedges and rushes that are planted would be conducted with the planting of "mats or plugs" with a minimum of six to eight inches of root mass and soils, and would typically be planted in areas below mean high water. Shrubs and trees that are planted would be seedlings or small saplings (typically 2 – 6 feet in height). Annual rye (*Lolium multiflorum*), a non-native species, would be included in seed mix to provide for early erosion control ground cover.

Table 1. Preferred Plant Species for American River Riparian and Floodplain Restoration.

Grasses and Grass-Like	Forbs	Shrubs	Trees
Mountain brome *Bromus marginatus*	Arrowleaf groundsel *Senecio triangularis*	Rocky mountain maple *Acer glabrum*	Grand-fir *Abies grandis*
Water sedge *Carex aquatilis*		Mountain alder *Alnus incana*	Subalpine fir *Abies lasiocarpa*
Carex rostrata Beaked-sedge		Wavy-leaved alder *Alnus sinuata*	Engellmann spruce *Picea engelmannii*
Tufted hairgrass *Deschampsia cespitosa*		Red osier dogwood *Cornus stolonifera*	Lodgepole Pine *Pinus contorta*
Dagger-leaf rush *Juncus ensifolius*		Drummond's willow *Salix drummondiana*	Douglas-fir *Pseudotsuga menziesii*
Small-fruited bulrush *Scirpus microcarpus*			

h. Dependent on follow-up monitoring (e.g., erosion, vegetation cover), additional seedings or plantings would take place to provide ground cover that prevents adverse erosion and infestations of undesireable non-native plant species (e.g., minimum 80% natural or pre-project conditions). Use of herbicides for control of undesireable non-native plants, would adhere to guidance, specifications, and terms and conditions identified in annual and/or multi-year BLM weed control program, BA, and Biological Opinion (BO). Standards and criteria would address type herbicides authorized for use, application rates, application methods, and criteria for protection of water quality, riparian habitats, special status species, and non-target vegetation.

2. Upstream "V" Check Dams

a. Large boulders/rocks (e.g., 1.5 – 3 ft. diameter) would be used for construction of upstream "v" check dams.
b. Rocks would be slightly embedded/keyed into stream bottom and streambank.
c. During low flow conditions, fish passage would not be impeded by check dam.
d. Excavation (e.g., removal of 2 – 6 cubic yards of material) of a pool downstream from check dam would occur as necessary to facilitate creation and maintenance of pool habitats. Excavated material would be placed above mean high water and contoured. Stabilization and erosion control for excavated material would include seeding and mulching.
e. Turbidity would be reduced with implementation of the following: (1) minimize the amount of excavation for each pool; (2) do not conduct all instream restoration work in one year, a minimum of two to four years would be used for completion of construction work; and (3) use monitoring to adaptively reduce turbidity by timing and amount of excavation for each pool.
f. Dependent on annual stream flows and contract logistic needs, the following actions would be considered and implemented if determined to be feasible and beneficial for reduction of short term turbidity and deposited sediment effects: (1) the majority of excavation of pools would take place during higher flow periods (early to mid July) as the first phase of the project; and (2) then the second phase of the project would include

additional minor excavation of pools as needed, followed by construction of rock check dams, installation of woody debris, and placement of habitat rocks; which would take place from approximately mid-July through mid-August.

3. Large Woody Debris

a. Logs and root wads would be selectively placed instream to provide improved cover and habitat complexity. Logs and/or root wads with boles would typically be 1 – 1.5 ft. in diameter and 8 – 12 feet in length.
b. Logs would be embedded in streambanks and/or secured with large habitat rocks.
c. Tree felling in RHCAs would only occur where that activity would not affect Riparian Management Objectives for shade and woody debris recruitment. Wood for instream placement would be taken from outside the RHCA wherever practical.

4. Habitat Rocks

a. Habitat rocks would include rocks typically 1.5 – 3 feet in diameter.
b. Placement of rocks would often be used in conjunction with placement of large woody debris.
c. Placement of rocks would typically be used in combination with other rocks to provide for instream cover and complexity.

5. Stream Improvement Maintenance

a. As needed, maintenance or removal of stream improvement structures would take place. Objectives of such maintenance would primarily be to prevent adverse bank erosion, removal of non-functional or structure that may cause adverse effects to fish habitat (e.g., non-functional log check dam causing bank erosion), or to improve placement and function of existing check dams, woody debris, or habitat rocks.
b. The appropriate work specifications identified for instream fish habitat improvement would be followed.

B. East Fork American River Culvert Replacement Project

It is proposed to replace a six foot culvert with a 20 foot wide bridge. The project area is located in T. 29 N., R. 8 E., Section 11. See Appendix A for project location map and project drawings. Following are specific design features of the culvert replacement project:

1. Replace existing 6 foot culvert with a 20 foot pre-cast concrete bridge.
2. Bridge will be wide enough to accommodate one-lane traffic and include guardrails or curbing as required.
3. Install riprap if needed to assist in bank stabilization beyond wingwalls.
4. The contractor would temporarily de-water the work site, by using a culvert (minimum size 3 feet diameter) and a lined ditch. A coffer dam would be used to divert water into the inlet of the lined ditch or culvert and would also be placed at the outlet to prevent

water from flowing through or backing into the work site for the bridge construction. As needed, any water that leaking through the coffer dams or intercepted subsurface flows will be pumped to an off-channel settling basin and then filtered through straw and/or natural vegetation before reaching the stream. The settling basin would consist of straw bales and straw laid out on the ground to filter the water and to prevent sediment from reaching the stream channel.

5. Construct approximately 75 feet of temporary road to provide equipment and vehicle access around the work site. The road will be located between the East Fork American River coffer dam (diversion for de-watering) and the bridge work site. The road will cross over the culvert used for de-watering the work site and will also cross the de-watered East Fork of American River channel (immediately upstream from bridge construction site). Temporary fill will be placed in the stream channel and on the roadway as needed. After bridge construction is completed the road fill and surface material will be removed from stream channel and floodplain areas. The road area will be ripped and seeded with primarily native species (seed mix will include annual rye). Public use of this access road would be restricted as needed for construction activity, and would include public notification of time periods road would be open for public use.
6. The culvert replacement and bridge construction phase of project is planned to occur July 1 – October 15, during low flow periods.
7. Improve roadway by flattening grade from approximately 120 feet either side of existing culvert location and surfacing with typical aggregate road mix.
8. Construct an upstream "V" rock check dam immediately upstream from bridge. The purpose of the check dam would be to maintain existing pool and to reduce adverse bank erosion. Large woody debris and use of habitat rocks would be placed in pool to provide instream cover. Instream project work associated with construction of rock check dam and placement of woody debris and habitat rocks would occur during July 1 – August 15 (work below mean high water).
9. The new bridge would simulate a natural stream bottom throughout its length. As needed, placement of suitable sized substrate (1 – 6 inches) material would take place throughout the length of the bridge. Larger rock and boulders (1-2 feet in diameter) would be strategically placed to provide cover and pocket water, and to improve streambottom stability and "anchor" substrate.
10. All equipment (e.g., excavator) used for construction activity would be cleaned and any leaks repaired prior to arriving at the project. Equipment would be inspected daily for leaks or accumulations of grease, and fix any identified problems before entering areas that drain directly to stream. The furthest practical distance from river on site would be used for maintenance of equipment.
11. No storage of fuel would be authorized within RHCA. Refueling would be accomplished with the use of slip-on fuel tanks and such tanks will be less than 150 gallons. The furthest practical distance from river on site would be used for refueling of machinery.
12. During construction, erosion/sediment control measure would include sediment fences, sediment traps (straw bales), and mulching. After project is completed, placement of embankment (roadfill) erosion protection measures would include: riprap and erosion control fabric. Streambank and other disturbed areas would be seeded or planted

primarily with native species (see Table 1). Refer to requirements for fish habitat improvement above for seedings, plantings, monitoring, and weed control (Numbers 7 and 8). Annual rye will be included in seed mix to provide for early erosion control ground cover.

13. Fish would be captured by electrofishing and removed upstream of the project area prior to de-watering and construction activity below mean high water (East Fork American River). Captured fish would be placed in a dark colored five gallon bucket and will be moved immediately upstream to suitable habitat (e.g., pool or area that provides cover and flow refuge). Temporary block nets would be in place to prevent fish migrating or entering the culvert replacement site prior to dewatering. The protocol for capturing fish (electrofishing) that would be followed is identified in *National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed Under The Endangered Species Act* (National Marine Fisheries Service 2000). The appropriate fish collection permits would be obtained from NOAA Fisheries and IDFG. If bull trout are sampled during monitoring or while conducting project work, USFWS would be notified.
14. A temporary detour route (existing road) may used to provide temporary public vehicle access for upriver American River subdivision residents or the public during the culvert replacement project. Potential detour routes are located upriver of the work site. The detour route would include use of existing roads/bridge crossing private lands that connect the American River subdivision road with the Ericson Ridge road. As needed, road maintenance and reconstruction for the detour route (approximately 0.4 mile) would be in accord with the programmatic BA of the road maintenance program (includes minor reconstruction and repair) (USDI-BLM 1999).
15. Because of temporary restrictions on public access at the work site, the following would take place: signing to notify the public of route restrictions; public notices in regards to planned project work; and public notices in regards to detour routes that may be used and associated use restrictions. Temporary public detour access may occur at one or both of the routes identified in Number 5 and/or Number 14. Prior to construction taking place, the appropriate authorization would be obtained from private land owner at the bridge work site or any temporary public vehicle detour access that may be used.

C. Telephone Creek Road to ATV Trail Conversion and Channel Re-Connect Project

It is proposed to convert 0.9 mile of road to an ATV trail and to construct a new stream channel that will re-connect Telephone Creek with American River. See Appendix A for project location maps and project drawings. Following are specific design features of the road to ATV trail conversion and channel re-connect project:

1. Approximately 0.9 mile of road would be converted an ATV trail.
2. As needed, the proposed rehabilitation project would include outsloping road. As needed, drainage crossings would be reconstructed to natural gradient. As needed the roadway would be outsloped by grading the existing prism to a uniform four percent slope to insure proper drainage. The grading would move material from the fill-slope to the toe of the cut-slope to obtain the outslope.

3. The current road width would be reduced to 60 inches. A 60 inch wide trail would remain within the existing road prism. The trail would be developed after the initial outsloping of the road prism by not ripping the outside (fill-slope side) 60 inches. This would be accomplished by ripping the surface to 16 inches or the depth of compaction to increase water infiltration and percolation and to provide seedbed. In areas that are relatively level (e.g., cut and fill areas not evident or limited), the maintained trail tread would be located on the upslope side of road and ripping outside of road segment (nearest creek). Placement of rock or slash would be placed to limit ATV use to the 60 inch wide trail.
4. Hardening of two fords and reconstructing stream channels (approx. 30 – 50 feet) to insure stream stays in channel rather than flow down road would take place at fords. Hardening of fords would include placement of 3 – 6 inch pit run/gravel at the fords and stream crossing approaches.
5. The American River new re-connect channel would include constructing approximately 340 feet of new channel and installation of a six foot diameter culvert (partially buried 35%) at American River road crossing.
6. During channel construction and culvert installation the channel would be dewatered by not connecting new channel to the existing channel until completed. As needed, excessive subsurface flows would be pumped to an off channel settling basin and filtered through straw and natural vegetation before reaching the stream. The settling basin would consist of straw bales and straw laid out on the ground so water can filter through the straw to prevent sediment from reaching the stream channel.
7. A 50-75 foot temporary single lane detour route would be constructed east of the American River road culvert installation site. This detour road will provide vehicle passage on the American River road while the culvert is being installed. After construction is completed, this road will be rehabilitated as needed to prevent adverse erosion/sediment (i.e., deep ripping, seeding, and mulching).
8. Upon completion of new channel, approximately 200 feet of existing channel would be abandoned and the existing channel will be diverted into new channel. The abandoned channel would be seeded and planted with native species. Annual rye will be included in seed mix to provide for early erosion control ground cover. Placement of large woody debris will be selectively placed in old channel.
9. The new culvert would simulate a natural stream bottom throughout its length. As needed, placement of suitable sized substrate (1 – 6 inches) material would take place throughout the length of the culvert.
10. Excavated channel material would be put in a dump truck and stockpiled at a toe slope area not occurring in the flood plain.
11. The road to ATV trail conversion and channel reconnect project is planned to occur July 1 – October 15, during low flow periods (work below mean high water).
12. All equipment (e.g., excavator) used for construction activity would be cleaned and any leaks repaired prior to arriving at the project. Equipment would be inspected daily for leaks or accumulations of grease, and fix any identified problems before entering areas that drain directly to stream. The furthest practical distance from river on site would be used for maintenance of equipment.

13. No storage of fuel would be authorized within RHCA. Refueling would be accomplished with the use of slip-on fuel tanks and such tanks would be less than 150 gallons. The furthest practical distance from river/stream on site would be used for refueling of machinery.
14. Streambank and other disturbed areas would be seeded primarily with native species and mulched. Trees and riparian shrubs would be planted adjacent to Telephone Creek and for detour route restoration. New stream channel/streambank disturbed areas or other project related disturbed areas located in riparian zones would use native species and methods identified above for fish habitat improvement project (see Table 1 for preferred species). Refer to requirements for fish habitat improvement above for seedings, plantings, monitoring, and weed control (Numbers 7 and 8). Annual rye will be included in seed mix to provide for early erosion control ground cover. Scattering and placement of woody debris will take place in designated areas. In non-riparian areas, the appropriate seedings and plantings for restoration of road fills, cutbanks, and road prism would take place. Upland seedings and plantings would include use the following preferred species: grand-fir, Douglas-fir, Rocky Mountain maple, mountain brome, sheep fescue (*Festuca ovina*), western yarrow (*Achillea millefolium*), and mountain pea (*Thermopsis montana*). Planted shrubs and trees would be seedling to sapling sizes.
15. Within the small stream channel segment of Telephone Creek that would be abandoned, prior to diverting water into new channel, fish will be captured by electrofishing and removed upstream of the project area. Captured fish would be placed in a dark colored five gallon bucket and would be moved immediately upstream to suitable habitat (e.g., pool or area that provides cover and flow refuge). Temporary block nets would be in place to prevent fish migrating or entering the culvert replacement site prior to dewatering. The protocol for capturing fish (electrofishing) that would be followed is identified in *National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed Under The Endangered Species Act* (National Marine Fisheries Service 2000). The appropriate fish collection permits would be obtained from NOAA Fisheries and Idaho Department of Fish and Game. If bull trout are sampled during monitoring or while conducting project work, USFWS would be notified.

Monitoring

Monitoring is a process of gathering information through observation and measurement to assure that project design criteria and mitigation are implemented. Effectiveness monitoring will be conducted to determine if goals and objectives for project are achieved as identified in the Environmental Analysis, BA and Biological Opinion. Two types of monitoring are identified: (1) implementation, and (2) effectiveness. Specifics of these types of monitoring are described below:

- Implementation monitoring is used to determine if management practices are implemented as identified in the American River Restoration Projects EA and BA.

- Effectiveness monitoring is used to determine if management practices, as designed and executed, are effective in meeting project objectives as defined in project EA and BA and Biological Opinion. Also included are goals and objectives identified in BLM land use plan for sediment/fisheries desired future conditions and trends.

The results of all monitoring will be summarized and shared with NOAA Fisheries and U.S. Fish and Wildlife Service biologists on the Level 1 Team. Upon request, monitoring data would also be shared with the Nez Perce Tribe, private individuals, groups, Federal agencies, and State agencies.

A. Implementation monitoring of the design criteria and mitigation would be conducted on a specific action and/or sample basis. Monitoring would be accomplished by agency representatives overseeing the actions, as well as an interdisciplinary and/or multi-party team through a combination of any of the following methods:

- Review EA, BA, and BO identified project specifications and terms and conditions to ensure that such is provided for in contract and/or plan of operation (project design and mitigation criteria).
- Review designs and plans of operation.
- Review contract administration reports (daily diaries).
- Review activities on the ground before, during and after implementation.
- Where appropriate, photo document pre project conditions, during project implementation, and post project conditions.

Implementation monitoring will focus on design criteria and mitigation as well as the Biological Opinion terms and conditions identified for project implementation. A monitoring form will be developed that includes project specific design and mitigation criteria. These implementation monitoring forms will be completed by agency personnel responsible for overseeing project implementation. These monitoring forms will be available for review and maintained in Field Office project/contract files. Problems will be noted and corrective actions taken within the scope of contract provisions.

B. Effectiveness monitoring (qualitative and quantitative) will be conducted to determine if project design and mitigation criteria achieve desired objectives and if effects analysis is as predicted. Sampling will also be conducted to monitor turbidity and compliance with the Idaho State Water Quality Standards and Clean Water Act. Effectiveness monitoring would be accomplished using established protocols specific to each criterion.

1. Deposited Sediment

a. Prior to implementing work on: (1) East Fork American River culvert replacement (new bridge); (2) Telephone Creek reconnect channel, establish three stream transects and monitor surface fines in American River approximately 25, 50, and 100 feet downstream). Monitoring will conducted: (1) immediately before project start; (2) immediately after project completed; and (3) the following year, after high flows.

b. Prior to completing ford and channel reconstruction/hardening project in Telephone Creek, establish three stream transects and monitor surface fines (approximately 25, 50, and 100 feet downstream). Monitoring will conducted: (1) immediately before project start; (2) immediately after project completed; and (3) the following year, after high flows.

c. Prior to constructing instream rock check dam/pool and installing woody debris and habitat rocks (three instream structures), establish three stream transects and monitor surface fines approximately 25, 50, and 100 feet downstream). Monitoring will conducted: (1) immediately before project start; (2) immediately after project completed; and (3) the following year, after high flows.

d. Monitor existing substrate stations in American River, Telephone Creek, and South Fork Clearwater River the following year after project construction.

2. Turbidity

a. Turbidity monitoring will require water samples being taken for the following instream activities: (1) East Fork American River culvert replacement project; (2) Telephone Creek channel reconnect project; (3) Telephone Creek ford/channel reconstruction; and (4) American River stream restoration construction.

b. Turbidity monitoring will focus on primary suspended sediment caused construction events, such as: (1) diversion of water through new East Fork American River bridge; (2) diversion of water through Telephone Creek reconnect channel; (3) Telephone Creek ford/channel reconstruction activities; and (4) excavation of pool downstream from check dam.

c. Turbidity monitoring will require water quality samples being taken during instream project construction. A minimum of three monitoring stations will be established at work sites, and will focus on periods when turbidity is expected to be highest (see Number 2 above). Monitoring will be conducted upstream from project, downstream at the mixing zone (as described by Idaho State Water Quality Standards), and 300 hundred feet downstream from work site.

d. All specified DEQ requirements for exceedance of 50 nephelometric turbidity units (NTUs) over background, which would occur instantaneously at the mixing zones downstream from work site, would be adhered to during project implementation.

e. If turbidity measurements 300 feet downstream of the work site exceed 25 NTUs over background levels for more than three consecutive hours, immediate project activity modification or reclamation measures will be implemented to reduce turbidity to less than 25 NTUs.

3. Fish Population Monitoring

Continue periodic monitoring of established BLM permanent fish population monitoring stations in American River, East Fork American River, and Telephone Creek. Establish additional station in American River (upriver East Fork) and East Fork American River (downstream from FS boundary).

4. Fish Habitat Monitoring

a. Within treatment reach segments complete post project subbasin survey (R1/R4 fish habitat survey) of American River and Telephone Creek reconnect channel.
b. Compare pre- and post- project monitoring to achievement of desired future conditions.

5. Other Applicable and Ongoing Aquatic Monitoring

a. IDFG will continue to monitor a screw trap located in American River (downstream from mouth of Buffalo Gulch).
b. IDFG will continue spring chinook redd monitoring in American River.
c. IDFG will continue monitoring established fish population stations within watershed.
d. Coordinate with FS and Tribe to continue fish habitat condition and trend monitoring at existing sites on American River and the South Fork Clearwater River.
e. Coordinate with other agencies and the Tribe for continuation of water quality and discharge monitoring in selected streams in American River drainage and South Fork Clearwater River.
f. BLM will continue conduct riparian monitoring and periodic surveys in selected American River and tributaries.