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# CARMEN LEVEE REHABILITATION PROJECT

## Federal Natural Resources Law Compliance and Biological Assessment

ADMINISTRATIVE RECORD – DO NOT DESTROY

**FILE NUMBER: PM-EC-2018-0030**

May 2018

## SUMMARY

This biological assessment is prepared pursuant to section 7(a)(2) of the Endangered Species Act to evaluate effects of the proposed Carmen Levee Rehabilitation Project on listed species under the jurisdiction of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service.

The Corps concludes that the proposed project may affect, and is likely to adversely affect Snake River sockeye, Snake River spring/summer Chinook, and Snake River steelhead, and is not likely to adversely affect their critical habitat. The Corps also concludes that the project may affect, but is not likely to adversely affect bull trout or their critical habitat. The action will have no effect on yellow-billed cuckoo, North American wolverine, Canada lynx, and whitebark pine. The Corps determined the proposed action may adversely affect Essential Fish Habitat and Magnuson-Stevens Act consultation is required. Additionally, the Corps determined that the proposed project would result in no take of species listed under the Migratory Bird Treaty Act, and no disturbance or take under the Bald and Golden Eagle Protection Act.

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## ACRONYMS

| | |
|---|---|
| BGEPA | Bald and Golden Eagle Protection Act |
| CFR | Code of Federal Regulation |
| Corps | Walla Walla District, U.S. Army Corps of Engineers |
| DPS | Distinct Population Segment |
| EFH | Essential Fish Habitat |
| ESA | Endangered Species Act of 1973, as amended |
| ESU | Evolutionarily Significant Unit |
| FR | Federal Register |
| FWCA | Fish and Wildlife Coordination Act |
| MBTA | Migratory Bird Treaty Act |
| MSA | Magnuson-Stevens Act |
| NMFS | National Marine Fisheries Service |
| SRB | Snake River Basin |
| USFWS | U.S. Fish and Wildlife Service |

# 1. Federal Action

## 1.1. INTRODUCTION

The U.S. Army Corps of Engineers, Walla Walla District (Corps) proposes to repair approximately 1,000 feet of the Carmen levee on the right bank of the Salmon River, upstream from Carmen, Idaho. The Carmen Levee Project was constructed in the 1960s by non-federal/local entities. There are 39 structures in the leveed area, which includes 23 residences and 16 outbuildings. Total estimated structure value within the leveed area is $5.9 million.

The levee was damaged during sustained high flows during the 2017 flood season. The proposed repair site incurred damage in which riprap on the slope and toe eroded away making the remaining slope steep and unstable and exposing the levee material underneath. Some riprap remains, but no longer provides an adequate level of flood protection.

The repairs will include restoring the damaged levee segment to the as-was condition where erosion or riprap displacement has taken place. There would be disturbance both above and below the Ordinary High Water Mark to repair the levee toe and place fill material and riprap. Rock riprap revetment along the riverside slopes will be placed. There are several areas where the riprap is in good condition and can be reused.

## 1.2. AUTHORITY

On July 31, 2017, the Lemhi County Commissioners requested assistance from the Corps, to repair the damage to the levee under Public Law 84-99, Flood and Coastal Storm Emergencies. Under this law, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities including disaster preparedness, Advance Measures, emergency operations (Flood Response and Post Flood Response), rehabilitation of flood control works threatened or destroyed by flood, protection or repair of Federally authorized shore protective works threatened or damaged by coastal storm and provisions of emergency water due to drought or contaminated source. In response to the Commissioners' request, the Corps prepared a "Rehabilitation Project Information Report for Carmen Levee Project", which was approved by the Corps Northwestern Division office on January 26, 2018.

## 1.3. SITE DESCRIPTION

Carmen is located in central Idaho (Figure 1) about 4 miles north of Salmon, Idaho. The levee repair project is located along the Salmon River in Sections 17 and 18, Township 22 North, Range 22 East, Boise Meridian, in Lemhi County, Idaho (Figure 2). The repair site is upstream from the U.S. Highway 93 bridge. Figures 3-6 show damages in need of repair.

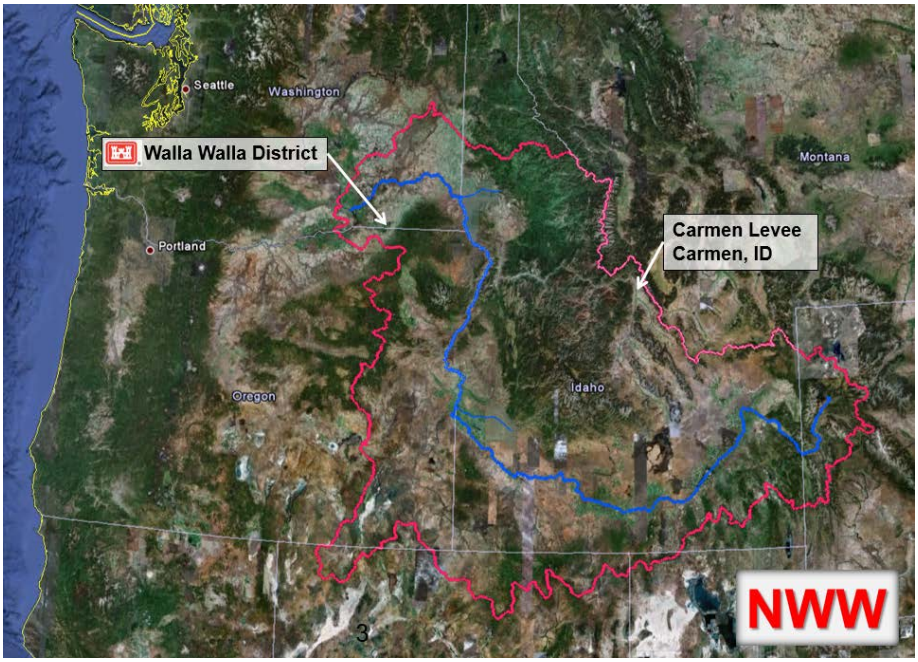

Figure 1. Project location in Idaho

Figure 2. Repair Site Location upstream from U.S. Highway 93 bridge

The Carmen levee is about 4,400 feet in length, has an average crown width of 12 feet, has river and landside slopes typically 2H:1V with varying sized riprap, and has an average embankment height of 6 feet.

Figure 3. Damaged levee facing upstream

Figure 4. Eroding slope

Figure 5. Eroded, over-steepened slope facing downstream

Figure 6. Damaged slope on downstream end

## 1.4. DESCRIPTION OF THE PROPOSED ACTION

Construction will consist of restoring the levee to the as-was condition by re-constructing portions of the levee that eroded away and replacing the riprap armoring on the riverward side. The repairs will include restoring the entire damaged levee segment to reestablish a 2H:1V riverside slope (Figure 7) where erosion or riprap revetment displacement has taken place. Dense, 24-inch average diameter, granite rock riprap revetment along the riverside slopes will be placed and keyed together. Keying is a method where individual pieces of riprap are interlocked together to make a stronger surface that will withstand higher velocities than un-keyed revetment. A toe consisting of large riprap will be installed to support the slope. The repair will begin at the most upstream scour area and end at the furthest downstream area, which is approximately 1,000 feet on the right bank of the river. There are several areas where the riprap is in good condition and can be reused.

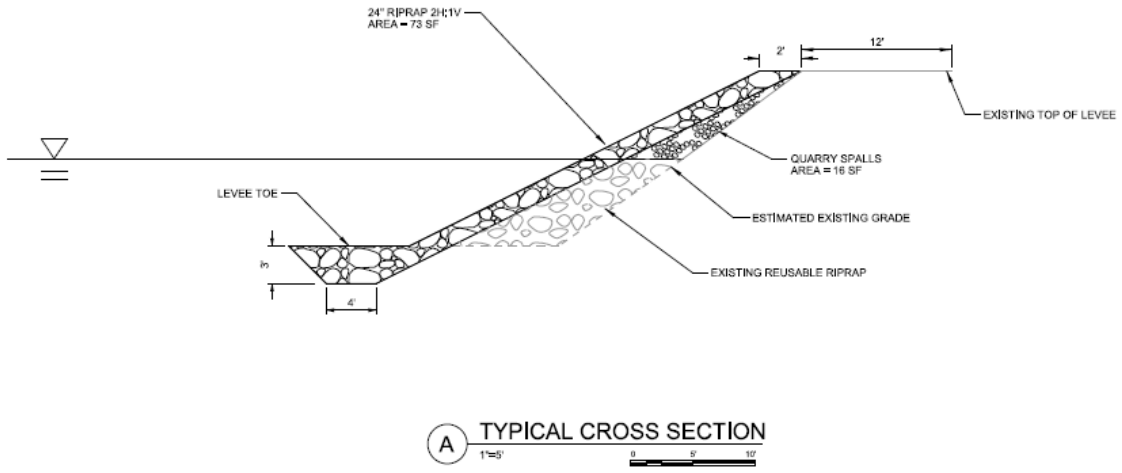


Figure 7. Typical cross section for slope and riprap replacement

Approximately 1,900 cubic yards of riprap and 415 cubic yards of quarry spalls will be hauled to the repair site from a nearby quarry with dump trucks. The rock material will be unloaded on top of the levee and placed on the levee with an excavator operating from the top of the levee. An excavator would place large riprap in the river at the toe of the levee. Riprap would extend from the toe up the face of the levee to the top of the levee. The riprap would be placed with the excavator bucket. It would not be dumped directly into the water from a truck or the excavator bucket. Only the bucket would enter the water.

## 1.5. PROJECT TIMELINE

All work is planned to be conducted during the normal Idaho Fish and Game in-water work window for the mainstem Salmon River of July 7 to August 14, 2018. The repair

work is estimated to take 4 weeks to complete. However, the work could occur during the entire in-water work period.

Due to the limited time available to complete project planning and permitting, the work may need to be delayed until after the July 7 to August 14 work window. The work window provided to the Corps by the National Marine Fisheries Service is July 14 to March 14. Work would be conducted within this window, but would still take up to 4 weeks to complete. It would be best if the work could be completed prior to the onset of winter.

## 1.6. PROPOSED CONSERVATION MEASURES

The Corps proposes the following conservation measures as part of the proposed action.

1. Work will be conducted during the Idaho Fish and Game in-water work window for the mainstem Salmon River, which is July 7 to August 14. This will minimize impacts to Endangered Species Act (ESA)-listed fish. If the work cannot be completed during this timeframe, work would be completed between July 14 and March 14, which is the National Marine Fisheries Service imposed work window.

2. Riprap and quarry spalls that are free of fine-grained material will be used.

3. Work will be conducted during a low water period.

4. All heavy equipment (i.e., dump trucks and excavators) will access the project sites via existing roadways and the tops of levees.

5. An Environmental Protection Plan will be prepared by the Contractor and carried out commensurate with the scope of the project.

6. All equipment will be inspected daily for fluid leaks, any leaks detected will be repaired before operation is resumed.

# 2. Listed Species

## 2.1. SPECIES LISTED FOR THE PROJECT AREA

The Corps reviewed the lists of threatened and endangered species that pertain to the action area under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) on October 16, 2017 and updated March 20, 2018 [USFWS Ref# 01EIFW00-2018-SLI-0040 (compiled in Table 1) for Lemhi County, Idaho]. Yellow-billed cuckoo, North American wolverine, Canada lynx, and whitebark pine do not occur in the project area, and will not be affected by the proposed actions. As a result, they will not be discussed in detail.

Table 1. List of threatened and endangered species and critical habitat.

| Species | Listing Status | Critical Habitat |
|---|---|---|
| NMFS | | |
| Snake River Sockeye (*Oncorhynchus nerka*) | Endangered | Designated |
| Snake River Steelhead (*Oncorhynchus mykiss*) | Threatened | Designated |
| Snake River Spring/Summer Chinook (*Oncorhynchus tshawytscha*) | Threatened | Designated |
| USFWS | | |
| Columbia Basin Bull Trout (*Salvelinus confluentus*) | Threatened | Designated |
| Yellow-billed Cuckoo (*Coccyzus americanus*) | Threatened | Proposed |
| North American Wolverine (*Gulo gulo luscus*) | Proposed Threatened | None |
| Canada Lynx (*Lynx canadensis*) | Threatened | Designated |
| Whitebark Pine (*Pinus albicaulis*) | Candidate | None |

## 2.2. SPECIES STATUS

### 2.2.1 Snake River Sockeye

*Listing History*
Snake River sockeye salmon were listed as endangered in November 1991 (56 FR 58619). The listing was reaffirmed in 2005 (70 FR 37160) and updated in 2014 (79 FR 20802). Critical habitat was designated in 1993 (58 FR 68543).

*Distribution*
This listed species includes all anadromous and residual sockeye from the Snake River basin, Idaho, as well as artificially–propagated sockeye from the Redfish Lake broodstock program. Sockeye salmon only use the Salmon River in the project area for adult migration and smolt outmigration. No spawning or overwintering occurs in the project area. Adult sockeye salmon migrate upstream through the project area to spawn in Redfish Lake and other lakes in the Sawtooth National Recreation Area near Stanley, Idaho upstream from the levee repair area.

*Life History/Biological Requirements*
Sockeye migrate from the ocean into freshwater streams and rivers to their natal lakes to spawn. They spawn only once and then die. Sockeye salmon exhibit a wide variety of life history patterns that reflect varying dependency on the freshwater environment. With the exception of certain river-type and sea-type populations, the vast majority of sockeye salmon spawn in or near lakes, where the juveniles rear for 1 to 3 years prior to migrating to sea. For this reason, the major distribution and abundance of sockeye salmon stocks are closely related to the location of rivers that have accessible lakes in their watersheds for juvenile rearing. Most sockeye salmon stay at sea for two years,

returning to spawn at about age four, but some may be 5 to 6 years old when they spawn.

Adult sockeye spawn in several redds over a couple of days. Hatching usually occurs after 6 to 9 weeks. Most sockeye fry then rear in lakes where they feed on aquatic insects and plankton. Smolts transform as they migrate downstream so they can process saltwater. They initially stay close to shore and feed on insects and plankton. Once they move offshore, their diet turns mainly to amphipods, copepods, squid, and some fishes.

*Factors for Decline*
Snake River sockeye were once purposefully killed in order to benefit the rainbow trout fishery. Loss of habitat and loss of individuals at dams and reservoirs as well as poor ocean conditions affect the sockeye population. Ongoing problems for sockeye in the Salmon River include irrigation withdrawals that create unnaturally low seasonal flows, elevated water temperatures, and degraded riparian habitat.

*Local Empirical Information*
The population of Snake River sockeye salmon is extremely low, but has shown an increase recently. Trends from the early 1990's show increases from the single digits to over 1,000 on average since 2010. Recent annual abundances of natural origin sockeye salmon to the upper Salmon River, particularly the Stanley Basin, have been extremely low.

Adult sockeye may be present between July and December. Adult sockeye salmon begin entering the Columbia River in early June and generally reach the spawning lakes between June and the end of September. Within the levee repair area, adult sockeye salmon and anadromous smolts are expected to migrate through this reach of the Salmon River during the construction timeframe.

*Ongoing Monitoring*
A variety of conservation efforts have been undertaken with some of the most common initiatives including captive-rearing in hatcheries, removal and modification of dams that obstruct salmon migration, restoration of degraded habitat, acquisition of key habitat, and improved water quality and instream flow.

### 2.2.2 Snake River Steelhead

*Listing History*
Snake River Basin (SRB) steelhead were listed as threatened on August 18, 1997 (62 FR 43937) and reaffirmed in 2006 (71 FR 834). The listing was updated in 2014 (79 FR 20802). The Distinct Population Segment (DPS) includes all naturally spawned steelhead populations below natural and manmade barriers in streams in the Snake River basin of southeast Washington, northeast Oregon, and Idaho, as well as six artificial propagation programs: the Tucannon River, Dworshak National Fish Hatchery, Lolo Creek, North Fork Clearwater River, East Fork Salmon River, and the Little Sheep

Creek/Imnaha River Hatchery steelhead hatchery programs. Critical habitat was designated in 2005 (70 FR 52769).

*Distribution*
With one exception (the Tucannon River production area), the tributary habitat used by Snake River steelhead is above Lower Granite Dam. Annual return estimates are limited to counts of the aggregate return over Lower Granite Dam. Returns to Lower Granite Dam fluctuated widely in the 1980s and remained at relatively low levels through the 1990s.

*Life History/Biological Requirements*
The Interior Columbia Basin Technical Recovery Team identified six major population groups in the DPS: (1) The Grande Ronde River system, (2) the Imnaha River drainage, (3) the Clearwater River drainage, (4) the Salmon River, (5) Hells Canyon, and (6) the lower Snake. The Snake River historically supported more than 55% of total natural-origin production of steelhead in the Columbia River Basin. It now has approximately 63% of the basin's natural production potential.

SRB steelhead migrate a substantial distance from the ocean (up to 940 miles) and use high elevation tributaries (up to 6,562 feet above sea level) for spawning and juvenile rearing. SRB steelhead occupy habitat that is considerably warmer and drier (on an annual basis) than other steelhead DPSs. Managers classify up-river summer steelhead runs into two groups based primarily on ocean age and adult size upon return to the Columbia River. A-run steelhead are predominately age-1-ocean fish while B-run steelhead are larger, predominated by age-2-ocean fish. SRB steelhead are generally classified as summer run, based on their adult run timing pattern. SRB steelhead enter fresh water from June to October, and after holding over the winter, spawn during the following spring from March to May. SRB steelhead usually smolt as 2- or 3-year-olds. Outmigration occurs during the spring and early summer periods, coinciding with snowmelt in the upper drainages.

Steelhead adult migration preferred temperatures are between approximately 39.2 and 48.2°F (4 and 9°C) (Bell 1990). Steelhead preferred temperatures are between 50 and 55.4°F (10 and 13°C), while the upper lethal limit for steelhead is 75°F (23.9°C) (Spence et al. 1996).

*Factors for Decline*
Limiting factors for salmonids in the Salmon River include streambank erosion causing increased sedimentation, irrigation withdrawals that create unnaturally low seasonal flows, elevated water temperatures, and degraded riparian habitat.

*Local Empirical Information*
Adult steelhead may be present between September and June.

*Ongoing Monitoring*
Passage of adult and juvenile steelhead is monitored at the Snake River dams. There are also several other monitoring programs by other federal, state and tribal organizations throughout the watershed.

### 2.2.3 Snake River Spring/Summer Chinook

*Listing History*
The Snake River spring/summer Chinook salmon Evolutionarily Significant Unit (ESU) was listed as threatened on April 22, 1992, (67 FR 14653). The listing was reaffirmed in 2005 (70 FR 37160) and updated in 2014 (79 FR 20802). This ESU includes all natural-origin populations in the Tucannon, Grande Ronde, Imnaha, and Salmon Rivers. Fish returning to several of the hatchery programs are also listed, including those returning to the Tucannon River, Imnaha, and Grande Ronde River, as well as the Sawtooth, Pahsimeroi, and McCall hatcheries on the Salmon River. Critical habitat was designated in 1999 (64 FR 57399).

*Distribution*
Based on genetic and geographic considerations, the Interior Columbia Basin Technical Recovery Team (ICBTRT) (2003) established five major population groups in this ESU: the Lower Snake River tributaries, the Grande Ronde and Imnaha Rivers, the South Fork Salmon River, the Middle Fork Salmon River, and the upper Salmon River. The ICBTRT further subdivided these groupings into a total of 31 extant, demographically independent populations. However, Chinook salmon have been extirpated from the Snake River and its tributaries above Hells Canyon Dam, an area that encompassed about 50 percent of the pre-European spawning areas in the Snake River Basin.

*Life History/Biological Requirements*
Populations of Chinook are grouped by the time they return to the rivers to begin their final spawning journey: spring, summer, and fall. Though Chinook salmon can be found entering spawning rivers throughout the year, the majority return from April to December. Adult Chinook salmon migrating upstream past Bonneville Dam from March through May, June through July, and August through October are categorized as spring, summer, and fall-run fish, respectively.

In general the habitats utilized for spawning and early juvenile rearing are different among the three forms. Spring Chinook salmon tend to use large lower elevation streams or mainstem areas. Summer Chinook salmon are more variable in their spawning habitats, in the Snake River, they inhabit small, high elevation tributaries typical of spring Chinook salmon habitat, whereas in the upper Columbia River they spawn in larger, lower elevation stream more characteristic of fall Chinook salmon habitat.

Spring/summer Chinook normally spawn in late July–September using gravel bars in smaller river and tributary streams. Juvenile spring/summer Chinook behave differently than fall Chinook in that they remain in headwater streams for a year and out–migrate

the following spring. Juvenile Chinook salmon feed on small aquatic invertebrates in both fresh and saltwater, primarily insects in freshwater and crustaceans in marine environments. As they grow in saltwater, they quickly change to a fish diet.

Juvenile Snake River, spring/summer Chinook salmon migrate through the Snake and Columbia rivers between early March and late July, while adult fish migrate through McNary Dam between early April and late July. Because this ESU is an upriver stock, no spawning habitat is present in the lower Snake or middle Columbia rivers. However, juvenile spring Chinook salmon have been documented using the backwater areas of Lake Wallula for rearing.

*Factors for Decline*
Limiting factors for salmonids in the Salmon River include streambank erosion causing increased sedimentation, irrigation withdrawals that create unnaturally low seasonal flows, elevated water temperatures, and degraded riparian habitat.

*Local Empirical Information*
Adult Chinook may be present in the Salmon River between May and September. Therefore they could be present during the construction timeframe.

*Ongoing Monitoring*
Passage of adult and juvenile Chinook salmon is monitored at the Snake River dams. There are also several other monitoring programs by other federal, state, and tribal organizations throughout the watershed.

### 2.2.4 **Bull Trout**

*Listing History*
The USFWS issued a final rule listing Columbia River Basin bull trout as threatened in 1998 (63 FR 31647). Bull trout are currently listed throughout their range in the U.S. as a threatened species. Bull trout critical habitat was designated in 2005 (70 FR 56212). The USFWS revised the designation in 2010. A final rule was published in 2010 (75 FR 63898). A total of about 18,795 miles of stream and 488,251 acres of reservoirs and lakes are designated as bull trout critical habitat. The Salmon River is designated as bull trout critical habitat.

*Distribution*
Once found in about 60 percent of the Columbia River Basin, today bull trout occur in less than half of their historic range. Some bull trout can be found in the Salmon River, but numbers are generally low.

*Life History/Biological Requirements*
Bull trout are members of the salmonid family which includes salmon, trout, grayling, whitefish, and char. Bull trout exhibit both resident and migratory life cycles. Compared to other salmonids, bull trout have more specific temperature requirements. They occur in cold water streams, and are rarely found in waters where temperatures exceed 59 to 64$^{o}$F.

*Factors for Decline*
Throughout its range, bull trout are threatened by the combined effects of habitat degradation, fragmentation, and alterations associated with dewatering; road construction and maintenance; mining; grazing; the blockage of migratory corridors by dams or other diversion structures; poor water quality; angler harvest; entrainment; and introduced nonnative species (USFWS 1998).

*Local Empirical Information*
An electrofishing survey of the mainstem Salmon River performed by IDFG in September and October 2016 detected a few bull trout (from 0 to 2 per hour of effort), predominantly in October. Very few bull trout would be present near the levee repair site.

Site-specific information on bull trout use of the Salmon River is lacking, but the reach of the Salmon River in the project area is known for foraging, migration, and overwintering habitat for adults and juveniles. Bull trout in this section of the Salmon River move into nearby tributaries in the spring and spend the summer in colder waters close to fall spawning habitat (Schoby 2004). Spawning occurs in tributaries to the Salmon River from mid-August through mid-October (USRBT 2005). During winter, bull trout may be encountered within the project reach; however, icing would prevent them from occurring in high densities (IDFG 2012).

*Ongoing Monitoring*
IDFG performs fish surveys on the Salmon River periodically.

### 2.2.5 Yellow-billed Cuckoo

The western distinct population segment of the yellow-billed cuckoo was listed under the ESA as a threatened species on October 3, 2014 for all states west of the Continental Divide (79 FR 59992). Critical habitat was proposed on August 15, 2014 (79 FR 48547).

Yellow-billed cuckoos live mainly among the canopies of deciduous trees. In the West, this species is rare and restricted to the cottonwood-dominated forests that line larger rivers running through arid country. Their diet consists mainly of tent caterpillars, cicadas, or large arthropods. In fall, areas with fall webworm infestations often support yellow-billed cuckoos.

Suitable breeding habitat for the cuckoo is defined as patches of mature riparian vegetation with willow and cottonwood that are greater than 50 acres in size. They may also use smaller riparian patches than those in which they typically nest for foraging.

In Idaho, the yellow-billed cuckoo is a rare visitor and local breeder that occurs in scattered drainages primarily in the southern portion of the state (Taylor 2000). In southwestern Idaho, the yellow-billed cuckoo has historically been considered a rare summer visitor and breeder in the Snake River Valley. Yellow-billed cuckoos have been

reported in willow/cottonwood forests in the Snake River Valley in southeastern Idaho. Numerous observations have been reported near: Rupert, Minidoka County; American Falls Reservoir (particularly on the stretch of Snake River flowing into the reservoir), Shelly, and Firth in Bingham County; Cartier Wildlife Management Area, Madison County; and Ririe, Jefferson County. Statewide, the breeding population is likely limited to a few dozen pairs (Taylor 2000).

### 2.2.6 North American Wolverine

North American wolverines were originally proposed for listing as threatened under the Endangered Species Act on February 4, 2013 (78 FR 7863). The reasons for the initial listing proposal were concerns from climate change, habitat loss, incidental trapping, and human interactions from winter recreation. This proposed listing was subsequently withdrawn in August of 2014 (79 FR 47521). The reason for the withdrawal was due to challenges to the original modeling and data used for the proposal. The withdrawal was legally challenged and a court ruling on April 4, 2016 resulted in wolverines being re-proposed to be listed as threatened (81 FR 71670). No critical habitat has been designated.

The wolverine is the largest terrestrial member of the family Mustelidae. Adult males weigh 26 to 40 pounds and adult females weigh 17 to 26 pounds. It has a broad, rounded head; short, rounded ears; and small eyes (USFWS 2016). They are highly solitary animals, leading to low population densities. Wolverines are sensitive to human disturbance. Viable populations require expansive wilderness areas with minimal human presence.

Their primary habitat is near timberline. The animals live in remote areas away from human populations. Denning occurs in the spring and generally above 8,200 feet. Home ranges are large and can cover up to 400 square miles for males. They are opportunistic and consume a variety of foods. They scavenge for dead animals during the winter, while their summer diet is made up of small mammals.

Wolverines have made a steady recovery in the past half century after hunting, trapping, and poisoning nearly extirpated the species from the lower 48 states in the early 1900's.

### 2.2.7 Canada Lynx

Canada lynx in the U.S. Distinct Population Segment (DPS) were listed as threatened in 2000 (65 FR 16053). This population segment occurs in forested portions of the States of Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, Wisconsin and Wyoming. Critical habitat for the Canada lynx (50 CFR 17.95(a)) has been designated for portions of Fremont, Lincoln, Park, Sublette, and Teton Counties, including parts of Yellowstone National Park and the Bridger-Teton and Shoshone National Forests. Critical habitat is not designated in Lemhi County, Idaho.

Lynx habitat can generally be described as moist boreal forests that have cold, snowy winters and a high-density snowshoe hare prey base. In the western contiguous United States, boreal forests transition to subalpine forest. Individual lynx maintain large home ranges generally between 12 to 83 square miles. The size of lynx home ranges varies depending on abundance of prey, the animal's gender and age, season, and the density of lynx populations.

Snowshoe hares are the primary prey of lynx, comprising the bulk of the lynx diet throughout its range. Without high densities of snowshoe hares, lynx are unable to sustain populations despite utilizing a multitude of other prey when snowshoe hare numbers are low. Other prey species include squirrels, grouse, porcupine, beaver, small rodents, fish, and ungulate carrion.

### 2.2.8 Whitebark Pine

Whitebark pine is a candidate for listing under the Endangered Species Act. On July 18, 2011, the USFWS assigned the whitebark pine a listing priority number of 2, which means that the species is on the verge of extinction. Its decline is attributed to habitat loss and mortality from white pine blister rust, mountain pine beetle, catastrophic fire and fire suppression, environmental effects resulting from climate change, and the inadequacy of existing regulatory mechanisms.

This tree is a 5-needled conifer species placed in the subgenus Strobus, which also includes other 5-needled white pines. It is typically 16 to 66 feet tall with a rounded or irregularly spreading crown shape. Whitebark pine are typically found in cold, windy, high elevation or high latitude sites in western North America and as a result many stands are geographically isolated. The young pines have grayish white to chalky white bark while older trees have brown scaly plates with narrow fissures. They can be confused with lodgepole pines or western white pine.

The species is found in Coastal Mountain Ranges (from British Columbia, Washington, Oregon, down to east- central California) and Rocky Mountain Ranges (from northern British Columbia and Alberta to Idaho, Montana, Wyoming, and Nevada).

USFWS anticipates whitebark pine forests will likely become extirpated and their ecosystem functions will be lost in the foreseeable future. The species appears to be in danger of extinction, potentially within as few as two or three generations.

## 2.3. STATUS OF CRITICAL HABITAT

### 2.3.1 Anadromous Fish

The entire mainstem Salmon River downstream from Alturas Lake Creek has been designated as critical habitat for sockeye salmon since 1993 (58 FR 68543), but all spawning and rearing habitat for the Idaho population occurs in the Stanley Basin.

Snake River spring/summer Chinook critical habitat was also designated in 1993 (58 FR 68543). The mainstem Salmon River is included in the designation.

Snake River steelhead critical habitat was designated in 2005 (70 FR 52769). The mainstem Salmon River is included in the designation.

Salmon and steelhead critical habitat consists of several physical and biological features. The features (underlined) and how the proposed project will affect them are presented below.

Water quantity would not be affected by the project.

Water quality would be temporarily impacted due to increased turbidity. Any potential effects to water quality would be minimal and short in extent and duration. Turbidity would likely return to background levels within a hundred feet within less than an hour of the placement.

Some (substrate) gravel/cobble could be covered by new riprap, but some riprap already exists along much of the levee. In areas where the existing riprap has been moved downstream, more riprap would be added to rebuild the levee slope.

Riprap will provide a medium for macroinvertebrates (forage), but likely not as much as more natural substrate would. Overall effects to forage would be minimal.

Natural cover along the levee is provided by water depth and natural and artificial substrate (cobble and riprap). The amount of cover in this section of the river would not be limited.

No artificial obstructions that block migration would be created by the project.

Riparian vegetation no longer exists along the levee. No riparian vegetation would be affected by the project.

Space for spawning and rearing is not limited in this section of the Salmon River. Adding riprap to the levee will not reduce the amount of space for spawning or rearing.

Water temperature is not likely to change significantly due to the project.

Water velocity in this leveed section of the Salmon River is likely higher during high flow periods than it was prior to levee construction. However, addition of new riprap to the levee is not likely to have a measureable change on the water velocity with the levee in place.

### 2.3.2 **Bull Trout**

Critical habitat for bull trout was designated in 2005 (70 FR 56212) and revised in 2010 (75 FR 63898). The mainstem Salmon River is included in the designation. The mainstem Salmon River is used for foraging, migration, and overwintering, mainly by

adult bull trout. Descriptions of the physical and biological features of bull trout critical habitat are numbered below. Effects to each feature that could be caused by the proposed action follow each of the feature descriptions.

1. Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.

- The proposed project actions will have no effect on this feature.

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.

- The proposed project actions may affect this feature by creating a temporary turbidity plume. However, the plume would not span the entire width of the river and would dissipate soon after the work is complete.

3. An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.

- The proposed project actions may affect this feature temporarily by disturbing the existing substrate and covering it with riprap. Only a small portion of the width of the river would be affected. Forage would likely recolonize within the riprap in a few months and have no lasting effects on bull trout.

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.

- The proposed project actions may affect this feature by continuance of simplified structure along the shoreline. There will be no establishment of complex habitat along the shoreline. However, the shoreline has been in a similar condition for many years.

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.

- The proposed actions will have no measureable effect on the temperature of the Salmon River.

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.

- The proposed actions will have no effect on this feature. The mainstem Salmon River is not known to support bull trout spawning, fry, or young-of-the-year. Very few if any juveniles would be present. The project would not increase the amount of fine sediment in the river.

7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.

- The proposed actions will have no effect on the Salmon River hydrograph.

8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.

- The proposed project actions may affect this feature by temporarily increasing turbidity. The temporary turbidity increase would not affect normal reproduction, growth, or survival of bull trout.

### 2.3.3 Yellow-billed Cuckoo

Yellow-billed cuckoo critical habitat was proposed for designation on August 15, 2014 (79 FR 48547). Critical habitat is not designated in Lemhi County, Idaho.

### 2.3.4 Canada Lynx

Critical habitat was designated in 2006 (71 FR 66008) and revised in 2014 (79 FR 54781). Critical habitat is designated in Boundary County, but not Lemhi County.

# 3. Environmental Baseline

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat (including designated critical habitat), and ecosystem within the action area. The environmental baseline is a “snapshot” of a species’ health at a specified point in time. It does not include the effects of the action under review in the consultation. Environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02). The baseline includes actions already affecting the species or that will occur contemporaneously with the consultation in progress.

Unrelated Federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are Federal and other actions within the action area that may benefit listed species or critical habitat.

In general, the environmental baseline within the proposed project sites has been degraded by over 50 years of flood control levee development, maintenance, and human activity. The proposed work sites contain flood control levees, armored with large riprap. The levees have disconnected the river from much of its historic floodplain. The size of the action area for this project is small due to the relatively small size of the project and minor potential effects. The site of the proposed action has been a leveed and riprapped bank since at least the 1960's. Almost all of the woody vegetation has been removed from the levee.

Stream Flows
The U.S. Geological Survey discharge monitoring station for the Salmon River is located in the town of Salmon, Idaho, approximately 5 miles upstream of Carmen (USGS Gage #13302500). This gaging station has a period of record covering October 1912 to present. Mean annual stream flow in the Salmon River is 1,100 cfs. High flows occur in June (mean monthly flow of 5,580 cfs) and low flows (mean monthly flow of 1,050 cfs) occur in September.

Stream Channel
The Salmon River at Carmen Bridge is a single channel river. Upstream and downstream of Carmen Bridge, multiple channels exist, but they do not persist for long distances. The bankline within the project area has been stabilized with riprap since the 1960s.

Riparian Vegetation
Mainstem Salmon River riparian vegetation is generally dominated by an overstory of black cottonwood (*Populus trichocarpa*), quaking aspen (*Populus tremuloides*), and willows (*Salix* spp.). Dominate shrubs are water birch (*Betula occidentalis*), red-osier dogwood (*Cornus stolonifera*), mountain alder (*Alnus incana*), woods rose (*Rosa woodsii*), and chokecherry (*Prunus virginiana*). Common herbaceous species include various grasses, sedges (*Carex* spp.) and Baltic rush (*Juncus balticus*). Degraded areas are dominated by Kentucky bluegrass (*Poa pratensis*), clover (*Trifolium* spp.), dandelion (*Teraxacum officinate*), and noxious and invasive weeds.

In the action area, very little woody riparian vegetation exists, nor has it for the last 25 years.

Fish Species
Besides the four listed salmonids, the mainstem Salmon River provides habitat for westslope cutthroat trout (*O. clarki lewisi*), brook trout (*Salvelinus fontinalis*), mountain whitefish (*Prosopium williamsoni*), resident redband/rainbow trout (*O. mykiss*), dace (*Rhinichthys* spp.), sculpin (*Cottus* spp.), redside shiners (*Richardsonius balteatus*), and

northern pikeminnow (*Ptychocheilus oregonensis*). Redband trout (*O. m. gairdneri*) is the inland endemic, resident form of steelhead (Behnke 1992). Redband trout is an Idaho State, BLM, and Forest Service sensitive species. Rainbow trout (*O. m. irideus*) is the coastal subspecies of *O. mykiss* that has been transplanted throughout the range of inland redband/steelhead. The three forms of *O. mykiss* interbreed and resident forms can produce anadromous smolts.

# 4. Effects of the Action on Listed Species

This section includes an analysis of general project-related effects of the proposed action, as well as specific effects on the species and critical habitats.

## 4.1. DIRECT EFFECTS

Direct effects include all immediate impacts resulting from project related actions. Potential direct effects to ESA-listed species associated with the proposed project may include work in the water below the ordinary high water mark, increased turbidity, and disturbance from construction equipment.

### 4.1.1 Work Below the Ordinary High Water Mark

An excavator would place large riprap in the river at the toe of the levee. Riprap would extend from the toe up the face of the levee to the top of the levee. The riprap would be placed with the excavator bucket. It would not be dumped directly into the water from a truck or the excavator bucket. Only the bucket would enter the water.

If any fish are present along the levee toe, they would be displaced by the in-water work. If large rock were to fall into the water (as opposed to being placed with the excavator) fish could be injured or killed.

### 4.1.2 Increased Turbidity and Sediment Redistribution

Riprap that is free of fine-grained material will be used for this project. However, existing fine material that may exist on the river bottom may be disturbed during excavation for the toe and placement of riprap. Any disturbed fine sediment could create a turbidity plume which would extend an undetermined distance downstream of the construction activity. It is expected that any turbidity plume created would dissipate as soon as the construction activity is complete.

Increased turbidity could have non-lethal effects on individual fish if they are exposed to the plume and there could be effects to habitat by redistribution and deposition of fine sediment downstream. Fine material could begin to fill spaces between gravel. However, the amount of fine sediment available that would temporarily increase the turbidity and deposit downstream is expected to be small. This is due to the relatively high water velocity along the levee that would not allow much fine sediment to be present under normal conditions.

### 4.1.3 Disturbance from Construction Equipment

Construction equipment operating on the levee would generate some noise and other disturbance on and near the levee. It is not expected that the noise generated will have negative effects on any ESA-listed species.

## 4.2. INDIRECT EFFECTS

Indirect effects of a proposed action are those impacts that are reasonably certain to occur later in time (after construction of the project is complete). Indirect effects include alteration of substrate suitable for plant growth. However, there is little to no vegetation currently growing on the levee. The levee is designed to be free of vegetation.

## 4.3. OTHER POTENTIAL EFFECTS

Equipment operating near and in the river channel within the work area creates a potential source of chemical contamination. Accidental spills of construction materials or petroleum products could adversely affect the shoreline and water quality. Development and implementation of an Environmental Protection Plan that will include containment measures and spill response for construction-related chemical hazards will significantly reduce the likelihood for chemical releases within the action area.

## 4.4. EFFECTS ON CRITICAL HABITAT

Fish habitat in the Salmon River was altered when the levee was originally constructed. Replacing large riprap rock along the toe and up the levee will not adversely affect the critical habitat for any of the anadromous fish species or bull trout.

There will be no effect on Canada lynx critical habitat as there is no critical habitat designated for this species in Lemhi County.

There will be no effect on yellow-billed cuckoo proposed critical habitat as there is no critical habitat for this bird near the work area.

## 4.5. EFFECTS DETERMINATIONS

### 4.5.1 Listed Species

The Corps determined that the proposed action may affect and is likely to adversely affect Snake River sockeye, spring/summer Chinook, and steelhead. Effects would be minor, but could result in harm to some individuals.

The Corps also determined that the proposed action may affect, but is not likely to adversely affect Columbia Basin bull trout. Very few bull trout would be present near the work area during construction. Any bull trout which were present could easily avoid the work area. Any potential impacts would be discountable.

There would be no effect on yellow-billed cuckoo, Canada lynx, North American wolverine, and whitebark pine. Effects determinations for listed species are summarized in Table 2.

### 4.5.2 Critical Habitat

The Corps determined that the proposed action is not likely to adversely affect critical habitat for any of the ESA-listed fish species in the Salmon River in the Carmen area.

The Corps also determined the proposed action will have no effect on critical habitat for yellow-billed cuckoo or Canada lynx.

# 5. Magnuson-Stevens Act - Essential Fish Habitat

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH.

This biological assessment evaluates and describes potential effects of the proposed action on EFH, in accordance with applicable requirements of section 305(b) of the Magnuson-Stevens Act, implementing regulations in 50 CFR Part 600.920. EFH includes those waters and substrates necessary for salmon production that can support a long-term sustainable salmon fishery and a healthy ecosystem. To achieve that level of production, freshwater EFH for Pacific Coast salmon includes all streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the Pacific Fisheries Management Council [PFMC]), and longstanding, naturally impassable barriers (i.e., natural waterfalls in existence for several hundred years). The action area is within EFH for spring/summer Chinook salmon.

The Corps determined the proposed action may adversely affect EFH and MSA consultation is required. An area up to 15,000 square feet would be affected below the Ordinary High Water Mark. A layer of riprap would be added to the existing riprap, both above and below the water line.

# 6. Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) authorizes the USFWS to evaluate the impacts to fish and wildlife species from proposed Federal water resource development projects that could result in the control or modification of a stream or body of water that might have effects on the fish and wildlife resources that depend on that body of water or its associated habitats. The proposed action does not modify a body of water from the baseline condition, and therefore, does not involve activities subject to the FWCA.

# 7. Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.

No riparian trees or shrubs or other nesting habitat would be removed along the levee. Work will be performed within the Idaho Department of Fish and Game in-water work window of July 7 to August 14 or later. The proposed action would not result in take of migratory birds.

# 8. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions, primarily for Native American Tribes. Take under the BGEPA includes both direct taking of individuals and take due to disturbance. Disturbance is further defined on 50 CFR 22.3.

Bald eagles are known to nest throughout Corps managed lands in the Walla Walla District. There are no known bale eagle nests near the proposed work sites. Only a few bald eagles have been sighted near the project boundaries. Figure 8 shows the recorded bald eagle sightings from the eBird website for the last 10 years from March to May, which is within the nesting season, which could indicate a nest nearby.

Throughout most of the western United States golden eagles are year-long residents (Polite and Pratt 1999), breeding from late January through August with peak activity in March through July (Polite and Pratt 1999). They may also move down-slope for winter or upslope after the breeding season (Polite and Pratt 1999). There are no known golden eagle nests near the proposed work sites.

There has only been one golden eagle sighting near Carmen, Idaho reported to eBird in March through May (during nesting season) over the last 10 years.

There are no known eagle nests near the proposed work sites. If any eagle nests are discovered near the work sites, work will not occur within 660 feet of the nests without further coordination with the USFWS. Therefore, this action would have no effect or take (to include disturbance) of either bald or golden eagles.


Figure 8. Bald eagle sightings near Carmen, Idaho in March through May (during nesting season) over the last 10 years.

# 9. Effects Summary

The Corps has determined that this action, as proposed, may affect, and is likely to adversely affect the anadromous fish species and may affect, but is not likely to adversely affect their critical habitat. The action may affect, but is not likely to adversely affect bull trout or their critical habitat. The action will have no effect on all other listed, proposed, or candidate species or their designated or proposed critical habitats (Table 2).

Table 2. Effect determinations for the listed species within the area potentially affected by this action.

| Common Name | Species Determination | Critical Habitat Determination |
|---|---|---|
| Snake River Sockeye | May Affect, Likely to Adversely Affect | May Affect, Not Likely to Adversely Affect |
| Snake River Spring/Summer Chinook | May Affect, Likely to Adversely Affect | May Affect, Not Likely to Adversely Affect |
| Snake River Steelhead | May Affect, Likely to Adversely Affect | May Affect, Not Likely to Adversely Affect |
| Bull Trout | May Affect, Not Likely to Adversely Affect | May Affect, Not Likely to Adversely Affect |
| Yellow-billed Cuckoo | No Effect | No Effect |
| North American Wolverine | No Effect | NA |
| Canada Lynx | No Effect | No Effect |
| Whitebark Pine | No Effect | NA |
| **MSA** | | |
| Adverse Effect | | |
| **FWCA** | | |
| Not Applicable | | |
| **MBTA** | | |
| No Take | | |
| **BGEPA** | | |
| No Disturbance or Take | | |

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