



**US Army Corps
of Engineers** ®

Walla Walla District
BUILDING STRONG®

**LEVEE REHABILITATION PROGRAM ASSISTANCE
PUBLIC LAW 84-99**

**CARMEN LEVEE
SALMON RIVER
LEMHI COUNTY, IDAHO**

ENVIRONMENTAL ASSESSMENT

**In compliance with the
National Environmental Policy Act of 1970**

ADMINISTRATIVE RECORD – DO NOT DESTROY

**PROJECT FILE NUMBER: PPL-C-2018-0030
P2 NUMBER: 467858**

November 2018

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Section 1 - Project Description

1.1 Project Name

Levee Rehabilitation Program Assistance, Public Law 84-99,
Carmen Levee, Salmon River, Lemhi County, Idaho

1.2 Project Location

Carmen is located in central Idaho about four 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 1-1). The repair site is upstream from the U.S. Highway 93 Bridge.

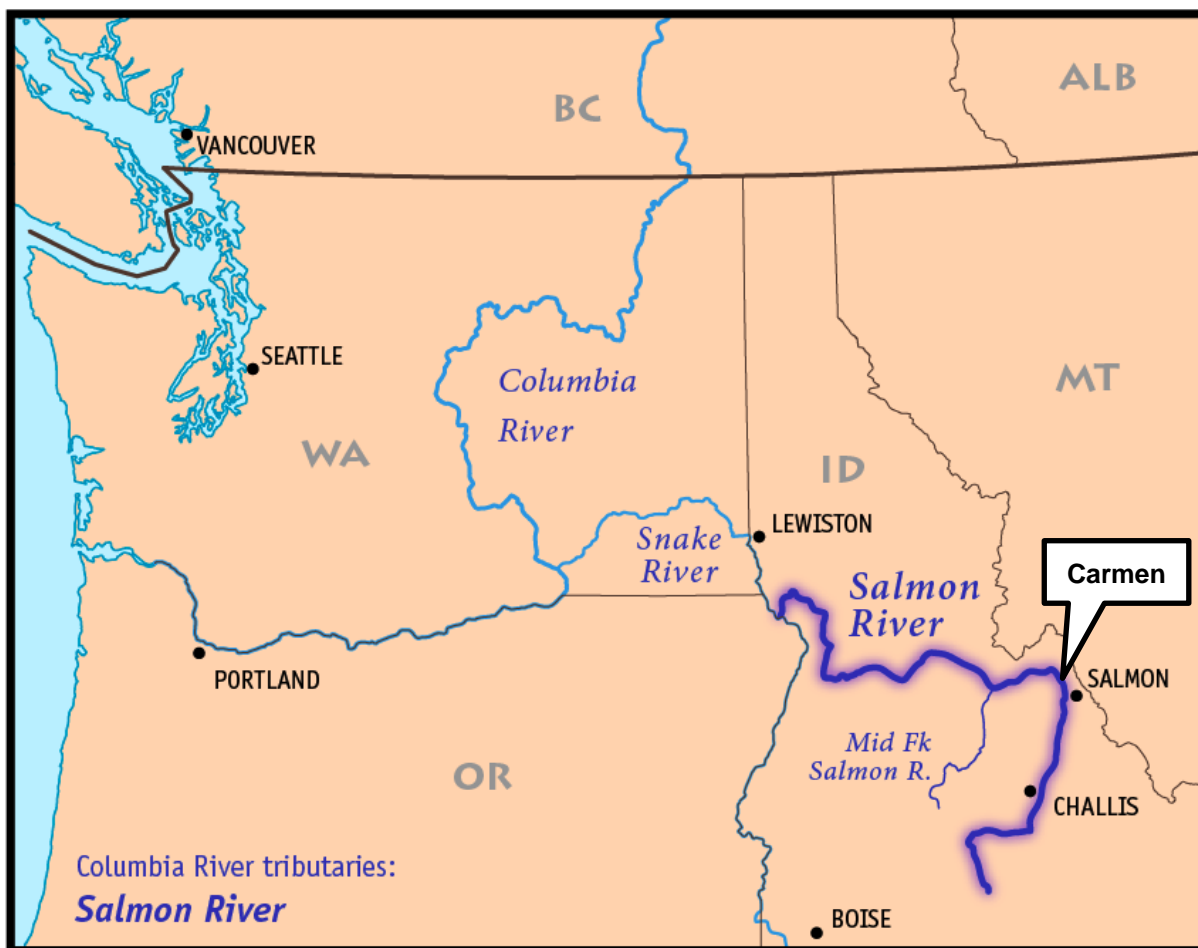


Figure 1-1: Project Location on the Salmon River near Carmen, Idaho.

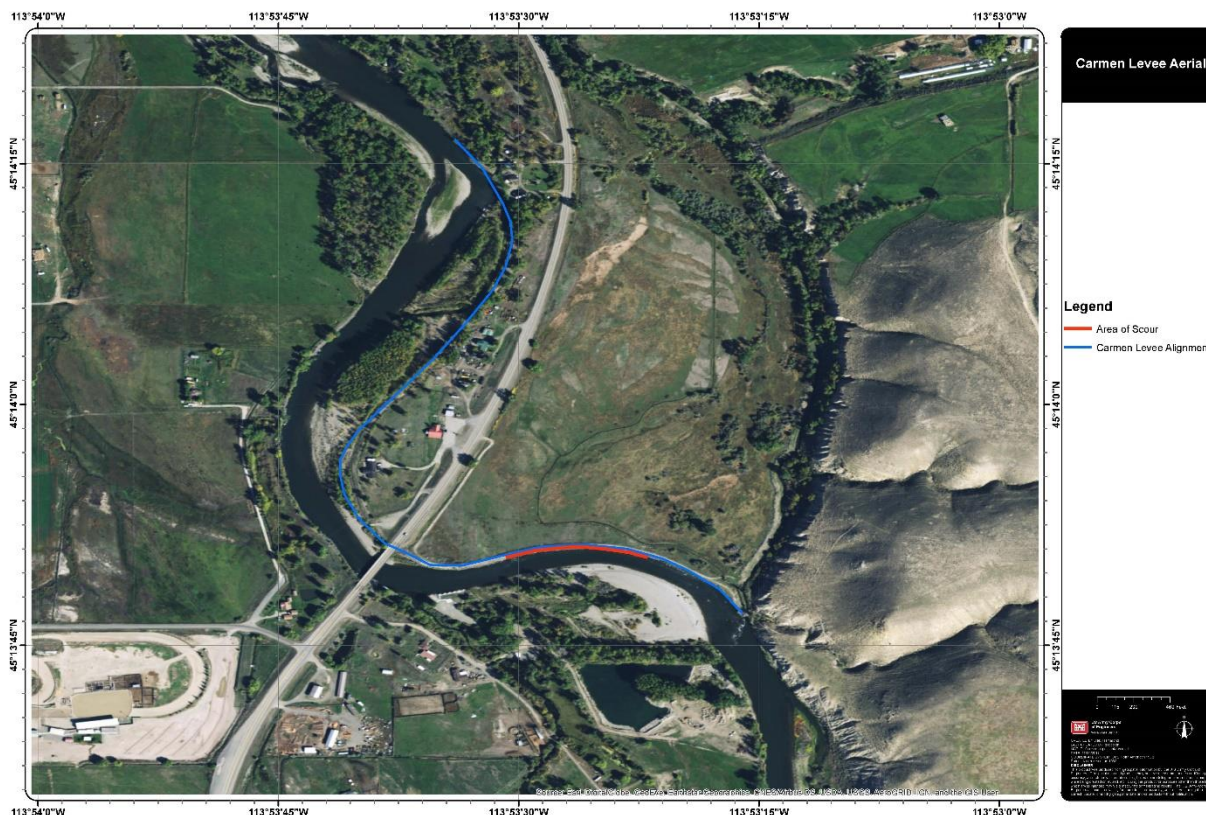


Figure 1-2: Repair Site Location (in red) Upstream from U.S. Highway 93 Bridge.

1.3 Project Description

The U.S. Army Corps of Engineers, Walla Walla District (Corps) repaired approximately 1,100 feet of the Carmen levee on the right bank of the Salmon River, upstream from Carmen, Idaho. An Emergency declaration (Appendix A) to repair the levee prior to the onset of winter and potential flooding was made on 24 August 2018. The action was considered an emergency due to the imminent risk of embankment failure separating the Salmon River from the city of Carmen. Construction occurred on 8-9 September. Additional work to finish a short section that was not completed was conducted in one day in October.

The levee was damaged during sustained high flows in the 2017 and 2018 flood seasons. The repair site incurred damage in which riprap on the slope and toe eroded away making the remaining slope steep and unstable and exposing the more erodible levee fill material underneath. Some riprap remained, but no longer provided an adequate level of flood protection. Figures 1-5 through 1-8 show damages that have been repaired.

The repairs included restoring the damaged levee segment to the as-was condition to reestablish a 2H:1V riverside slope (Figure 1-3). There was disturbance both above and below the ordinary high water mark to repair the levee toe and place fill material and riprap. There are several areas where the riprap was in good condition and was reused. See Section 2.2, below for a more detailed description of the action.

Ten small rock barbs (Figure 1-4) were installed approximately 100 feet apart along the toe of the repaired levee. These barbs minimize impacts to ESA-listed fish by replacing fish resting habitat along the levee.

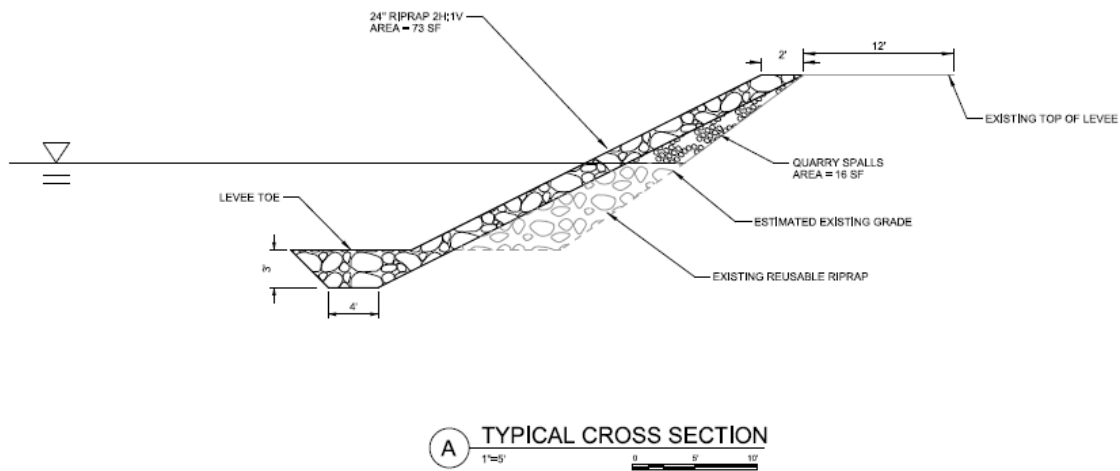


Figure 1-3: Typical Cross Section for Slope and Riprap Placement.

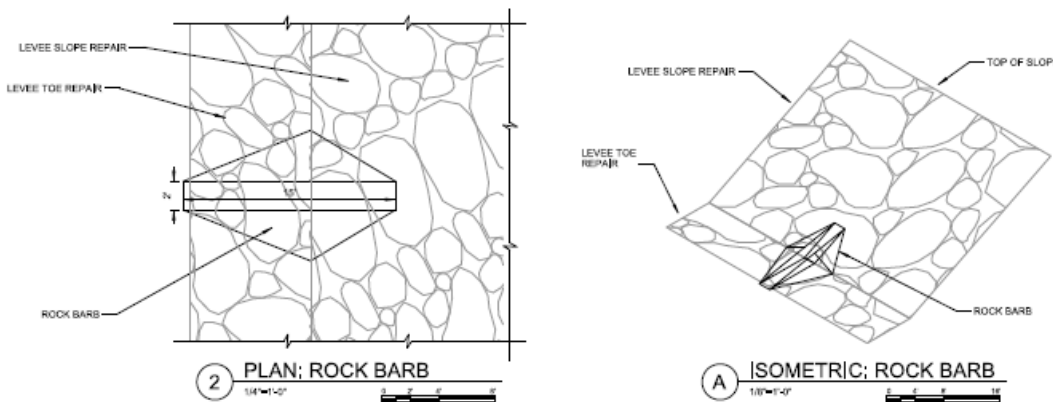


Figure 1-4: Plan Profile and Isometric Profile of the Fish Habitat Barbs.

1.3.1 Background Information

The Carmen Levee Project provides flood risk reduction to the city of Carmen, Idaho and adjacent areas. The non-federal levee is on the right bank of the Salmon River. The levee was non-federally built in the 1960s and is operated and maintained by Lemhi County. 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 six feet. Upstream of the U.S. Highway 93 Bridge, the levee is adjacent to and follows the river around a gentle bend. Downstream of the highway bridge, the levee follows the river around a fairly tight bend. The Carmen leveed area includes 188 acres, with 64 acres of pasture grass and undeveloped land.

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.

This Environmental Assessment (EA) was prepared in accordance with Engineer Regulation (ER) 200-2-2, *Procedures for Implementing NEPA*, and the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA)*, Title 40 Code of Federal Regulations (CFR), Part 1500-1508. The objective of the EA is to evaluate environmental effects of the levee rehabilitation action. Such effects were relatively minor, and a Finding of No Significant Impact (FONSI) has been issued for the action. Since the environmental effects were determined to be insignificant, an Environmental Impact Statement (EIS) is not required. Applicable laws under which these effects were evaluated include but are not limited to, NEPA, the Endangered Species Act, the Clean Water Act, the Clean Air Act, and the National Historic Preservation Act.



Figure 1-5: Damaged Levee Facing Upstream.



Figure 1-6: Eroding Slope.



Figure 1-7: Eroded, Over-steepened Slope Facing Downstream.



Figure 1-8: Damaged Slope on Downstream End.

1.3.2 Authority

On July 31, 2017, the Lemhi County Commissioners requested assistance from the Corps to repair the damage to the levees under Public Law (PL) 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 Commissioner's 2017 request, the Corps prepared a "Rehabilitation Project Information Report for Carmen Levee Project" which was found acceptable by the U.S. Army Corps of Engineers Northwestern Division on January 26, 2018. As required by PL 84-99, a Cooperation Agreement for Rehabilitation of a Federal Flood Control Work was executed between the Corps and Lemhi County on May 23, 2018.

1.4 Purpose and Need

The action is to repair the damaged levee sections. The purpose of the action is to maintain flood risk management for affected areas of Lemhi County. Rehabilitation included repairing the levee to the "as-was condition" in a manner that would not visibly or appreciably change the character, scope, or size of the original fill design. The action was needed because the levees protect nearby homes, agricultural land, and municipal facilities from flood damages.

1.5 Construction Timeline

All work was conducted during the National Marine Fisheries Service (NMFS)-approved in-water work window for the mainstem Salmon River which is July 14 to March 14. The construction activities took three days to complete. The work needed to be completed prior to the onset of winter due to poor working conditions during freezing weather.

Section 2 - Alternatives

Two alternatives are evaluated in this EA; the No Action Alternative and the Action Alternative. The statutory objectives/scheme supporting an action can serve as a guide to determine the reasonableness of objectives outlined in the EA – in this case, assistance under PL 84-99. Additionally, an agency's obligation to consider alternatives under an EA is a lesser one than under an EIS. Consequently, only the No Action and Action Alternatives are analyzed further. The No Action Alternative does not satisfy the project's purpose and need, but NEPA requires analysis of the No Action Alternative to set the baseline from which to compare other alternatives. No Action does not mean there would be no environmental impacts from this alternative.

2.1 Alternative 1: No Action

Under the No Action Alternative, the Corps would not re-construct the damaged levee segment to the as-was condition. Flows would eventually erode unprotected levee embankments and the levee system would continue to weaken and degrade. Flooding would occur resulting in damage to private and public properties during the next high flow event. The No Action Alternative does not meet the purpose and need, but is presented as required by NEPA to set the baseline from which to compare all other alternatives.

2.2 Alternative 2: Action – Levee Repair

Under the action alternative, the Corps re-constructed the damaged segment of the Carmen Levee to the as-was condition by re-constructing a portion of the levee that eroded away and replacing the armoring on the riverward side. The majority of the damaged levee does not contain trees or shrubs due to the heavily armored shoreline.

Construction activities included re-grading the damaged side slopes, placing fill material, and placing riprap.

Dense, 24-inch average diameter, granite rock riprap revetment along the riverside slopes was placed and keyed together. Keying is a method where individual pieces of riprap are interlocked together to make a stronger surface that can withstand higher velocities than un-keyed revetment. A toe consisting of large riprap was installed to support the slope.

The repair began at the most upstream scour area and ended at the furthest downstream area, which is approximately 1,100 feet on the right bank of the river.

Dump trucks hauled approximately 1,900 cubic yards of riprap, 415 cubic yards of quarry spalls, and 10 yards of topsoil to the repair site from a nearby quarry. The rock material was unloaded on top of the levee and placed on the levee with an excavator operating from the top of the levee. The excavator placed large riprap in the river at the toe of the levee. Riprap extended from the toe up the face of the levee to the top of the levee. The riprap was placed with the excavator bucket. It was not dumped directly into the water from a truck or the excavator bucket. Only the bucket entered the water. The topsoil was spread along the upper part of the levee and seeded with native grass.

Up to ten small rock barbs were installed, approximately one every 100 feet, to create resting areas for fish along the toe of the levee.

The levee was accessed by existing roads, including a maintained access road that traverses the top of the levee. An equipment staging area was located at a previously disturbed area adjacent to State Route 93 and the highway bridge. Basic materials for the levee rehabilitation were acquired from an existing and nearby commercial quarry and were similar to the existing material.

Section 3 - Affected Environment and Environmental Effects

This section describes the existing affected environment (existing condition of resources) and evaluates environmental effects on those resources for each alternative. Although only relevant resource areas are specifically evaluated for impacts, the Corps did consider all resources in the project area and made a determination as to which ones to evaluate. The following resource areas were evaluated: water quality, aquatic resources, wildlife, vegetation, threatened and endangered species, cultural resources, socioeconomics, recreation, effects of climate change, and cumulative impacts. It was determined that it was not necessary to evaluate aesthetics/visual quality, environmental justice, noise, soils, or air quality as implementation of the action would not affect these resources.

Table 1. Environmental Resources not evaluated further.

Environmental Component	Explanation
Aesthetics/Visual Quality	The action would restore the levee to its original condition. No noticeable permanent structure or visual obstruction would remain.
Environmental Justice	The action would have no negative impacts (e.g. economically) on any minority/ethnic group or social class.
Noise	The project area is located in rural Lemhi County. Construction noise would come from heavy equipment and placement of riprap and would take approximately three days.
Soils	The action would have no negative impacts on soils.
Air Quality	The project area meets Idaho State's ambient air quality standards and is in "attainment". Air quality would be negligibly affected by the action.

3.1 Water Quality

3.1.2 Affected Environment

The 425-mile Salmon River is one of the longest free-flowing rivers in the lower 48 states. The river begins as not much more than a trickle at an elevation of about 8,000 feet in the Sawtooth and Whitecloud Mountains of central Idaho. Around Carmen and the outlying vicinity, the river is well confined within the river banks and within the Carmen Levee Project. Mean water temperature is approximately 59°F (15°C). The Salmon River is not listed as impaired within the project area, however, sedimentation, runoff, and erosion are factors that may cause poor water quality in the action area.

The Salmon River has a 125 mile segment of the mainstem from North Fork to Long Tom Bar that is designated as a wild and scenic river (79 miles designated as wild and 46 miles as recreational). This portion of the river begins approximately 13 miles downstream of Carmen.

3.1.3 Environmental Consequences

3.1.3.1 Alternative 1: No Action Alternative

Under the No Action Alternative there would be minor effects on water quality in the project area. The Corps would not repair the Carmen levee, but would allow the levees to continue to function in their damaged state. No ground disturbing activities would take place and no alterations of any levee would occur. The continued erosion of these levees would have minor, less than significant effects to water quality in the project area.

3.1.3.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, the effects to water quality in the project area were greater than the No Action Alternative, but still less than significant. Excavation and levee re-shaping required work below the ordinary high water mark of the Salmon River. Effects included increased sediment transport and increased turbidity at repair sites and for some distance downstream. These effects were localized and short term. To minimize sediment transport and increased turbidity, work was conducted prior to high flows and took a total of three days. Water quality was not monitored during the short construction period.

3.2 Aquatic Resources

3.2.1 Affected Environment

The Salmon River and its tributaries are known to support several cold-water fish species: Chinook salmon (*Oncorhynchus tshawytscha*) sockeye salmon (*O. nerka*), rainbow trout/steelhead (*O. mykiss*), brook trout (*Salvelinus fontinalis*), bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*O. clarkii lewisi*), mountain whitefish (*Prosopium williamsoni*), northern pikeminnow (*Ptychocheilus oregonensis*), and sculpin (*Cottus sp.*). Chinook salmon and whitefish are typically found in the mainstem and

larger tributaries. Rainbow trout/steelhead and sculpin also use the mainstem and some of the larger tributaries, while cutthroat trout, and brook trout are mostly found in headwater tributaries. Bull trout are found throughout the drainage, but mostly use smaller, low stream order reaches where cool, clean water is abundant. The river has a highly sought fishery which draws sportsmen for salmon and steelhead fishing.

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative there would be minor effects on aquatic resources in the project area. The Corps would not repair the levee system, but would allow the levees to continue to function in their damaged state. No ground disturbing activities would take place and no alterations of any levee would occur. The continued erosion of these levees would have minor effects to aquatic resources in the area.

3.2.2.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, there may have been minor, less than significant impacts to aquatic resources in the project area. Excavation and levee re-shaping required work below the ordinary high water mark of the river. Minor disturbance to fish and aquatic organisms may have occurred. Additional disturbance may have occurred downstream from these sites due to limited sediment transport and increased turbidity during construction. However, effects were localized and short term.

Work occurred when flow was low. The levee needed to be repaired prior to the next high flows when additional damage could cause further damage to the levee. Some aquatic invertebrates may have been lost during excavation and sedimentation, but these would be minor relative to the extensive populations of the river system. Fish could move to avoid repair sites until excavation was complete. Additionally, up to ten small rock barbs were installed approximately every 100 feet to create resting areas for fish along the toe of the levee, which is expected to have a beneficial effect on aquatic resources. No harm to aquatic resources was reported during construction.

3.3 Wildlife

3.3.1 Affected Environment

The Salmon River basin supports a wide diversity of animal and plant life. The mountains surrounding the Salmon River canyon are home to many species of large game including elk (*Cervus canadensis*), deer (*Odocoileus sp.*), and bighorn sheep (*Ovis canadensis*). There is very little wildlife habitat along the damaged levee, therefore not many wildlife species are present in the immediate area. Some rodents and other small mammals could exist among the riprap on the levee.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative there would be minimal effect on wildlife in the project area. The Corps would not repair the levee, but would allow the levee to continue to function in its damaged state. No construction-related ground disturbing activities would take place and no alterations of the levee would occur. The continued erosion of the levee would have little to no negative impact to wildlife in the area.

3.3.2.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, there were less than significant impacts to wildlife in the project area. Grubbing and clearing removed limited shrub habitat on the levee that may impact small birds and small mammals in the area. However, the loss of shrub habitat is minor relative to existing shrub habitat in the area. There may have been some loss of small mammals during excavation, but most of the species using this habitat likely relocated to nearby habitats. The operation of heavy equipment in the area would cause larger, more mobile species to avoid the levee repair sites during construction. This disturbance was short in duration and restricted to a small area. No harm to wildlife was noted during construction.

3.4 Vegetation

3.4.1 Affected Environment

Climate is a major factor in determining vegetation. In the Salmon River Basin, climate is influenced predominantly by eastward-moving air-masses from the Pacific Ocean. The area receives approximately nine inches of rain per year and 25 inches of snow.

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.

There is little to no vegetative cover currently on the damaged levee as can be seen in Figures 1-5 through 1-8. There are a few areas with grasses and shrubs, but no mature trees exist along the levee.

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative there would be no effect on vegetation in the project area. The Corps would not repair the Carmen levee, but would allow the levee to continue to function in its damaged state. No ground disturbing activities would take

place and no alterations to the levee would occur. The continued erosion of the levee would have no negative impact to vegetation in the area.

3.4.2.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, there were minimal impacts to vegetation in the project area. Almost all of the vegetation along the damaged levee had previously been removed or eroded during high flows. Native grass seed will be scattered along some of the levee.

3.5 Threatened and Endangered Species

3.5.1 Affected Environment

On March 20, 2018 the Corps reviewed the current list of threatened and endangered species that may exist in the project area under jurisdiction of the U.S. Fish and Wildlife Service (USFWS) for Lemhi County, Idaho. There are also two species under the jurisdiction of the National Marine Fisheries Service (NMFS) in the project area. The list of protected species is shown in Table 2.

Table 2. ESA listed species that may occur in the area potentially affected by this action.

Species	Scientific Name	Status
NMFS		
Sockeye Salmon	<i>Oncorhynchus nerka</i>	Endangered
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	Threatened
Steelhead	<i>Oncorhynchus mykiss</i>	Threatened
USFWS		
Canada Lynx	<i>Lynx canadensis</i>	Threatened
North American Wolverine	<i>Gulo gulo luscus</i>	Proposed Threatened
Bull Trout	<i>Salvelinus confluentus</i>	Threatened
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Threatened
Whitebark Pine	<i>Pinus albicaulis</i>	Candidate

Critical habitat is designated for sockeye, Chinook, steelhead, and bull trout.

Canada lynx, yellow-billed cuckoo, whitebark pine, and North American wolverine are not known to exist in the project area and, based on their life history requirements, these species are not likely to occur in any areas that are part of this action.

3.5.2 Environmental Consequences

3.5.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative there would be no effect on threatened and endangered species in the project area. The Corps would not repair the levee, but would allow the levee to continue to function in its damaged state. No ground disturbing activities would take place and no alterations of the levee would occur. The continued erosion of the levee would have no negative impact to listed species in the area.

3.5.2.2 Alternative 2: Action Alternative – Levee Rehab

Implementation of the Action Alternative may affect and is likely to adversely affect Snake River sockeye, spring/summer Chinook, and steelhead and may affect, but is not likely to adversely affect their critical habitat. Effects could be caused by an increase in turbidity during construction. A Biological Assessment (BA) was prepared and sent to the NMFS and the USFWS on April 11, 2018. A revised Biological Assessment (Appendix B) was provided to the NMFS and the USFWS on May 8, 2018. Additional information requested by the NMFS was provided to them on May 30, 2018. Consultation with NMFS was completed on September 10, 2018 with receipt of their Biological Opinion. The NMFS Biological Opinion is included as Appendix D. The monitoring requirements in the opinion were not conducted as the work was completed under the emergency action prior to its receipt by the Corps.

The Corps determined the proposed action may affect, but is not likely to adversely affect bull trout and a concurrence letter from the USFWS (Appendix C) was received on June 1, 2018 (FWS ref # - 01EIFW00-2018-I-1315). There would be no effect on yellow-billed cuckoo, Canada lynx, North American wolverine, or whitebark pine.

3.6 Historic/Cultural Resources

3.6.1 Affected Environment

The Carmen levee is over 50 years old, has retained integrity, and must therefore be evaluated as a potential historic property. However, the construction with local materials, standard prism design, and method of construction are not distinctive characteristics. Rather, the levee is representative of typical and uniformly applied methods and practices for construction of levees nationwide throughout the 20th century. The levee is not significant for local or regional development of the rural community and agricultural use of the Salmon River floodplain as these activities were developed prior to levee construction and would likely be sustained in the absence of the levee. Therefore, the levee is not considered eligible for listing in the National Register under any criteria. The Corps did not identify any other potential historic property in the project area.

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative there would likely be no immediate significant impacts to Historic/Cultural Resources in the project area. The Corps would not repair the damaged segments and would allow the levee to continue to function in its damaged state. The continued erosion at the damaged area would incrementally impact the integrity of the levee and likely affect an expanding extent. Degraded levees pose an increased risk of future catastrophic flood events. Levee failure and breaches have potential to impact historic resources distant from the levee system through flood inundation, erosion, and damage to the historic built environment and archaeological resources that may be unassessed and unrecorded.

3.6.2.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, there were no significant impacts on Historic/Cultural Resources. Rehabilitation activities utilized in-kind basic materials for the restoration of the damaged levee to its original, as-built configuration (with the addition of rock barbs). The staging area and access road would be restricted to previously disturbed and/or constructed resources. Thus, the action would have no adverse effect to the integrity of the appearance and design of the levee. The repair would restore the levee and diminish the risk of potential impacts due to uncontrolled flooding on undocumented historic properties that may exist within the floodway. No archaeological remains were found during construction.

3.7 Socioeconomics

3.7.1 Affected Environment

The Carmen levee is located in Lemhi County, Idaho. In 2017, Idaho had an estimated population of 1.717 million and Lemhi County had an estimated population of 7,875. The median household income for Lemhi County in 2017 dollars is \$36,757. The most common employment sectors held by residents of Lemhi County are Retail Trade, Healthcare and Social Services, Public Administration, and Professional, Scientific, and Technical Services. The current (2018), unemployment rate of Lemhi County is 3.6 percent. (Idaho Department of Commerce www.idaho.zoomprospector.com accessed on May 17, 2018).

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative there may be negative impacts to socioeconomics in the project area. The Corps would not repair the Carmen levee, but would allow the levee to continue to function in a damaged state. Levee failure could result in the loss of property and livelihood and threaten safety/loss of life.

3.7.2.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, no negative impacts to socioeconomics in the project area were recorded. During the construction period there may have been minor economic benefits to local businesses in the area as a result of contractors working in the vicinity. In addition, the repair of the levee resulted in the protection of private and public (bridge and abutment) property.

3.8 Recreation

3.8.1 Affected Environment

The primary recreation activities in the action area are hunting, fishing, hiking, mountain biking, whitewater rafting, tubing, canoeing, and kayaking. There are two somewhat

primitive boat launch sites downstream of the action area. The closest one is across the river while the other is on the same side of the river as the levee repair (Figure 3-1).

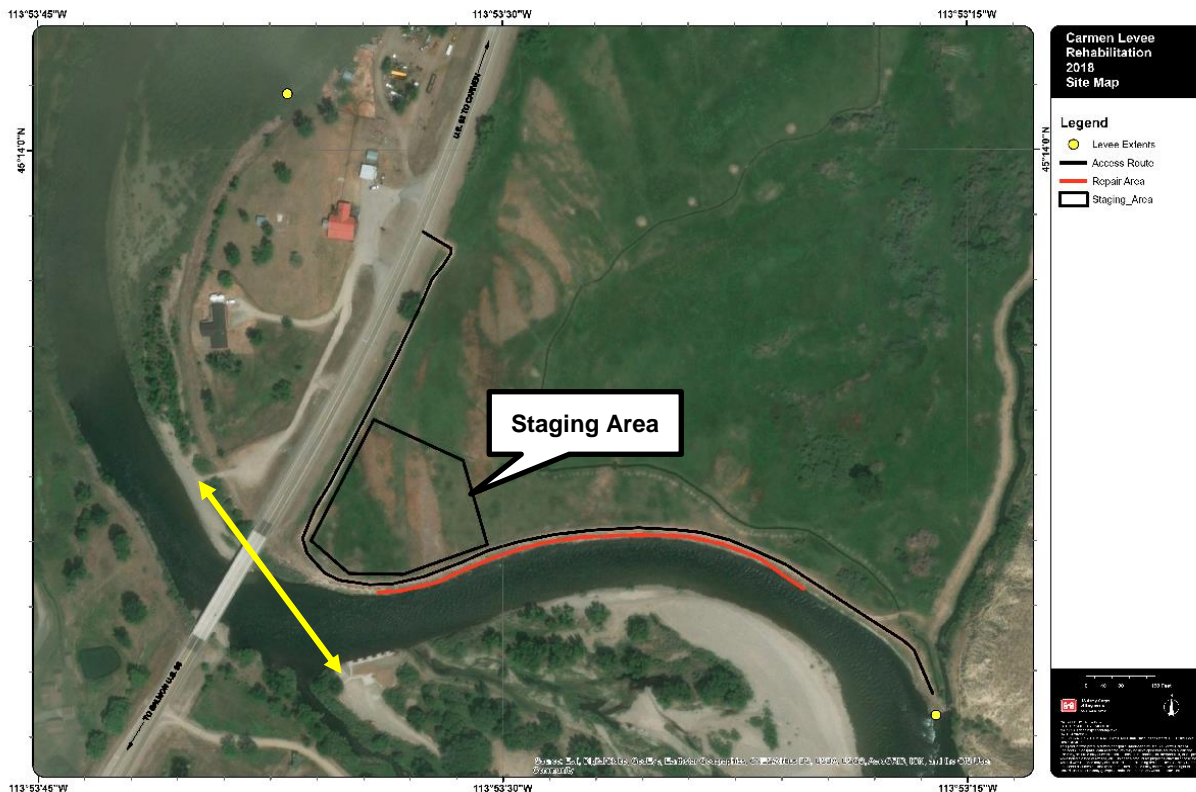


Figure 3-1: Boat Launch Sites in Yellow and Staging Area. Repair Area is Shown in Red.

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, negative effects to recreation in the action area would not be immediate. Popular recreating activities in and around the Salmon River would continue as normal during the spring and summer of 2018. If the levees are not repaired and high flows occur again during the next spring runoff, it is possible that river access in this area would be impacted and need to be temporarily closed to the recreating public.

3.8.2.2 Alternative 2: Action Alternative – Levee Repair

Construction occurred in September 2018. Recreation in the area was not disrupted. Therefore, negative effects were very minimal and short-term.

3.9 Climate Change

3.9.1 Affected Environment

Indications are that average global atmospheric temperatures are trending upward over the previous several decades, and are correlated to increased atmospheric carbon dioxide levels (USGCRP, 2017). In the Pacific Northwest, changes in snowpack,

stream flows, and forest cover are already occurring. Future climate change will likely continue to influence these changes. Average annual temperature in the region is projected to increase by 3-10°F by the end of the century. Winter precipitation in the form of rain, not snow is projected to increase while summer precipitation is projected to decrease (Melillo et al., 2014). In transient runoff watersheds (mid-elevation watersheds with winter and spring flows driven by both snowmelt and rainfall) like the Salmon River Basin, the magnitude and frequency of flooding is predicted to increase in the months of December and January (Elsner et al., 2010; Mantua et al., 2010).

3.9.2 Environmental Effects

3.9.2.1 Alternative 1: No Action Alternative

Under the No Action Alternative, there may be negative effects from climate change in the project area. The Corps would not repair the Carmen levee, but would allow the levee to continue to function in the damaged state. More frequent and more extreme winter floods would shorten the life of the damaged levee and increase the risk of levee failure. Levee failure could result in flooding in Carmen and surrounding areas and loss of property and livelihood.

3.9.2.2 Alternative 2: Action Alternative – Levee Repair

Under the Action Alternative, there may still be negative effects from climate change in the project area, although the action could delay or minimize the effects. The repair of the section of the Carmen levee would allow the levee system to withstand larger flood events, potentially up to a 200-hundred year flood. Larger and more frequent winter floods may threaten to overtop even a repaired levee system; however, levee repair would provide much greater protection for Carmen than the damaged state. The action (repair of the Carmen levee) is not expected to affect climate change or increase greenhouse gasses, except short-term emissions from construction vehicles.

3.10 Cumulative Impacts

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations implementing the Act require Federal agencies to consider the cumulative impacts of their actions. Cumulative effects are defined as, “the impact on the environment which results from the incremental impact of an action when added to other past, present and reasonable foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR § 1508.7). Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

The Salmon River in the action area has been greatly modified over the years by conversion to cropland, development, and the construction of the numerous levees and irrigation diversions. Channelization and other types of hydrologic modifications, such as similar stream bank alterations, could result in the cumulative loss and degradation of waterways in the watershed. However, bank stabilization reduces sediment loads and improves water quality.

Agricultural, flood risk management, and residential practices have resulted in the loss of much of the riparian buffer along the river. Sparse native riparian vegetation exists now along the shoreline in the form of a few cottonwood trees, grass, and a few shrubs. Many of the remaining cottonwoods directly above the ordinary high water mark have been, and continue to be, undermined by seasonal high water. In these areas, soils are loose and eroding severely.

Maintenance and flood-fighting actions on the levees have taken place in the past and would continue in the future. These actions generally include replacing lost fill and riprap and cutting woody vegetation from the levee before it has time to mature so that it does not cause levee stability problems in the future.

Four inspections conducted in years 2010, 2013, 2015, and 2017 did not identify any erosion damage or scour to the river side of the levee. Access roads to maintain and inspect levees are minimally maintained and occasionally require minor repairs. These effects are minor and localized.

Potential minor cumulative effects to fish and wildlife include on- and off-site habitat degradation associated with construction and development of private property, increased sedimentation associated with continued use of the road system, and increased channelization with further development of the river corridor.

There were no known major cumulative impacts from the action to repair the Carmen levee. The impacts were short term and localized and did not have substantial negative impacts to resources. All repairs were carried out in previously disturbed habitats and did not enlarge the footprint of the levee project.

Section 4 - Compliance with Environmental Laws and Regulations

4.1 National Environmental Policy Act

This Environmental Assessment was prepared pursuant to regulations implementing the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.). NEPA provides a commitment that Federal agencies will consider the environmental effects of their proposed actions prior to implementing those actions. Completion of this environmental assessment and signing of a Finding of No Significant Impact (FONSI), if appropriate, fulfills the requirements of NEPA.

Because ESA consultation with National Marine Fisheries Service was not complete before the contractor needed to begin work prior to the onset of winter weather, an “emergency declaration to proceed with repair” was signed by the Walla Walla District Commander on August 24, 2018 and is attached as Appendix A.

4.2 Endangered Species Act

The Endangered Species Act (ESA) established a national program for the conservation of threatened and endangered fish, wildlife, and plants and the habitat upon which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with the USFWS and NMFS, as appropriate, to ensure that their actions are not likely to

jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats. Section 7(c) of the ESA and the Federal regulations on endangered species coordination (50 CFR §402.12) require that Federal agencies prepare biological assessments of the potential effects of major actions on listed species and critical habitat.

Potential effects to threatened and endangered species were analyzed in the Project Biological Assessment (BA) (Appendix B) prepared by the Corps in May 2018. The Corps determined 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 proposed action would 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 action 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. The Corps requested informal consultation with the U.S. Fish and Wildlife Service on May 8, 2018 and received a concurrence letter (Appendix C) on June 1, 2018.

The Corps requested formal consultation with NMFS on April 11, 2018. A revised Biological Assessment (BA) (Appendix B) was provided to the NMFS on May 8, 2018. Additional information requested by the NMFS was provided to them on May 30, 2018. Consultation with NMFS was completed on September 10, 2018. The NMFS Biological Opinion is included as Appendix D.

4.3 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 as amended directs federal agencies to assume responsibility for all cultural resources under their jurisdiction. Section 106 of NHPA requires agencies to consider the potential effect of their actions on properties that are listed, or are eligible for listing, on the National Register of Historic Places (NRHP). The NHPA implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, requires that the federal agency consult with the State Historic Preservation Officer (SHPO), Tribes, and interested parties to ensure that all historic properties are adequately identified, evaluated and considered in planning for proposed undertakings.

The Corps determined that this action, as proposed, had no adverse effect to historic properties. The Idaho SHPO concurred with this determination in a letter dated June 22, 2018 (Appendix E). The Corps did not identify any historic properties of potential religious or cultural significance to Native American tribes so no tribes were consulted.

4.4 Clean Water Act

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 401 of the Federal Clean Water Act requires that

any Federal activity that may result in a discharge of dredged or fill material to waters of the United States must first receive a water quality certification from the state in which the activity would occur. Section 404 of the Clean Water Act established a program to regulate the discharge of dredged or fill material into waters of the United States.

The project does not require compliance with Section 404 of the CWA. It is exempt under 33 CFR 323.4, November 13, 1986, as amended, August 25, 1993. The exemption reads as follows: "Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that visibly or appreciably changes the character, scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs in order to qualify for this exemption." The repair work was completed in late-summer 2018.

4.5 Rivers and Harbors Act

The Rivers and Harbors Act of 1899 prohibits the construction of any dam or dike across any navigable water without Congressional consent and approval by the Corps. The Act prohibits any structure that would impede the navigability of the river by watercraft. On June 2, 2016, the U.S. Army Corps of Engineers formally designated the Salmon River as "navigable" under the Rivers and Harbors Act. It had been deemed non-navigable since 1933.

Nationwide permit 3; repair, rehabilitation, or replacement of structures destroyed by storms or floods in the past two years, applies to this project. Nationwide permits are a type of general permit designed to authorize certain activities that have no more than minimal individual and cumulative adverse environmental effects and generally comply with related laws. Activities that result in more than minimal individual and cumulative adverse environmental effects cannot be authorized by nationwide permits.

4.6 Executive Order 11988 Floodplain Management

This EO requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

The action re-constructed the levee to pre-damage condition and did not increase the development within the floodplain.

Section 5 - References

ER 200-2-2 (33 CFR 230) Environmental Quality Procedures for Implementing the National Environmental Policy Act

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40 CFR 1500-1508 Regulations for the Procedural Provisions of the National Environmental Policy Act