Environmental Assessment

Pettit Lake Creek Weir Construction

Sawtooth National Recreation Area
Sawtooth National Forest
Blaine County, Idaho

U.S. Department of Energy
Bonneville Power Administration
DOE/EA-2140

Section 31, T8N, R14 E, B.M.

United States Department of Agriculture

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USDA FOREST SERVICE MISSION STATEMENT

The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generation

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Chapter 1. Purpose and Need

1.1 Introduction

This Environmental Assessment (EA) is being prepared by the Sawtooth National Recreation Area (SNRA) with the Bonneville Power Administration (BPA), as a cooperating agency, to evaluate the effects of the SNRA authorizing and BPA funding the Shoshone-Bannock Tribes of Fort Hall (SBT) to construct a weir fish trap on Pettit Lake Creek, in the Sawtooth Valley, in Blaine County, Idaho. This would entail the removal of the existing structure and the construction of a new weir in the same location. Additionally, the remaining abutments from the Idaho Department of Fish and Game (IDFG) rough fish barrier, upstream of the weir, would be removed. This EA also evaluates the effects of issuing a 20-year US Forest Service (USFS) special use permit to the SBT for the continued operation and maintenance of the constructed weir fish trap on Pettit Lake Creek.

The SNRA and BPA have prepared this EA pursuant to the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [USC] 4321 et seq.) and its implementing regulations which require federal agencies to assess the impacts that their actions may have on the environment and make this impact analysis available to the public.

If, based on the analysis in this EA, the SNRA and BPA determine that these impacts are not significant and adopt the EA, the agencies would issue a Finding of No Significant Impact (FONSI). If, however, the SNRA and BPA determine that any of these potential impacts are significant, an Environmental Impact Statement (EIS) would be prepared for the proposal. At the conclusion of the NEPA process – either issuance of a FONSI or completion of the EIS process – BPA would make its decision on whether to provide the requested funding.

1.2 Need for Action

The SBT has requested authorization from the SNRA and funding from BPA to construct a replacement weir on Pettit Lake Creek. The SBT has requested this authorization and funding to correct safety, functional, and operational problems with the existing weir. These issues stem from an original design flaw (based on faulty flow data) which resulted in the 1995 construction of a weir inappropriately sized for the flow of Pettit Lake Creek during annual Sockeye Salmon (*Oncorhynchus nerka*) outmigration. A new weir is necessary to conduct safe and effective monitoring, research, and conservation actions for endangered Snake River Sockeye Salmon in Pettit Lake.

The SBT has also requested the SNRA to issue a 20-year special use permit for the operation of the weir fish trap to be constructed on Pettit Lake Creek. The SBT is currently operating under an expired special use permit for the operation of the existing weir. That SUP was issued in September 1996 and expired on December 31, 2016.

The SNRA needs to respond to SBT's requests for authorization of the proposed new construction and for issuance of the new special use permit. Authorizing the new weir would assist the SNRA in fulfilling its directive under 16 USC Chapter 1, Subchapter LXXXV: Sawtooth National Recreation Area concerning the protection and conservation of salmon and would be conducted in a manner that conserves natural values and public recreation and enjoyment.

BPA needs to respond to the SBT request for funds to construct the new weir. Funding the new weir would, among other purposes, assist BPA in fulfilling its responsibilities under the Northwest Power Act (16 U.S.C. § 839 et seq.), which requires BPA to fund fish and wildlife protection, mitigation, and enhancement actions, consistent with the Northwest Power and Conservation Council's (Council) Fish

and Wildlife Program. BPA's funding of the actions described in this EA would be consistent with the Council's Fish and Wildlife Program. The Council's Fish and Wildlife Program and BPA's participation is discussed further in Section 1.5.5 below.

1.3 Purpose

In meeting the need for action, the SNRA seeks to achieve the following conditions:

- Provide for recovery of Endangered Species Act (ESA)-listed Snake River sockeye salmon by monitoring lake production, survival, genetic composition, and anadromous returns through juvenile and adult trapping, consistent with the mission of the SNRA to fully implement Public Law 92-400 "to assure the preservation and protection of the natural, scenic, historic, pastoral, and fish and wildlife values and to provide for the enhancement of the recreation values associated therewith…"
- Implement requirements of the Sawtooth National Forest Land and Resource Management Plan to provide for the preservation and protection of ESA-listed Snake River sockeye salmon.
- Provide means for safe, accurate, and precise sockeye salmon monitoring data utilized for sockeye management decisions and recovery.
- Provide efficient trapping resources that minimize mortality of sockeye juveniles and provides the means for adult trapping for sockeye salmon monitoring and recovery.

In meeting BPA's need, the alternatives considered should achieve the following purposes:

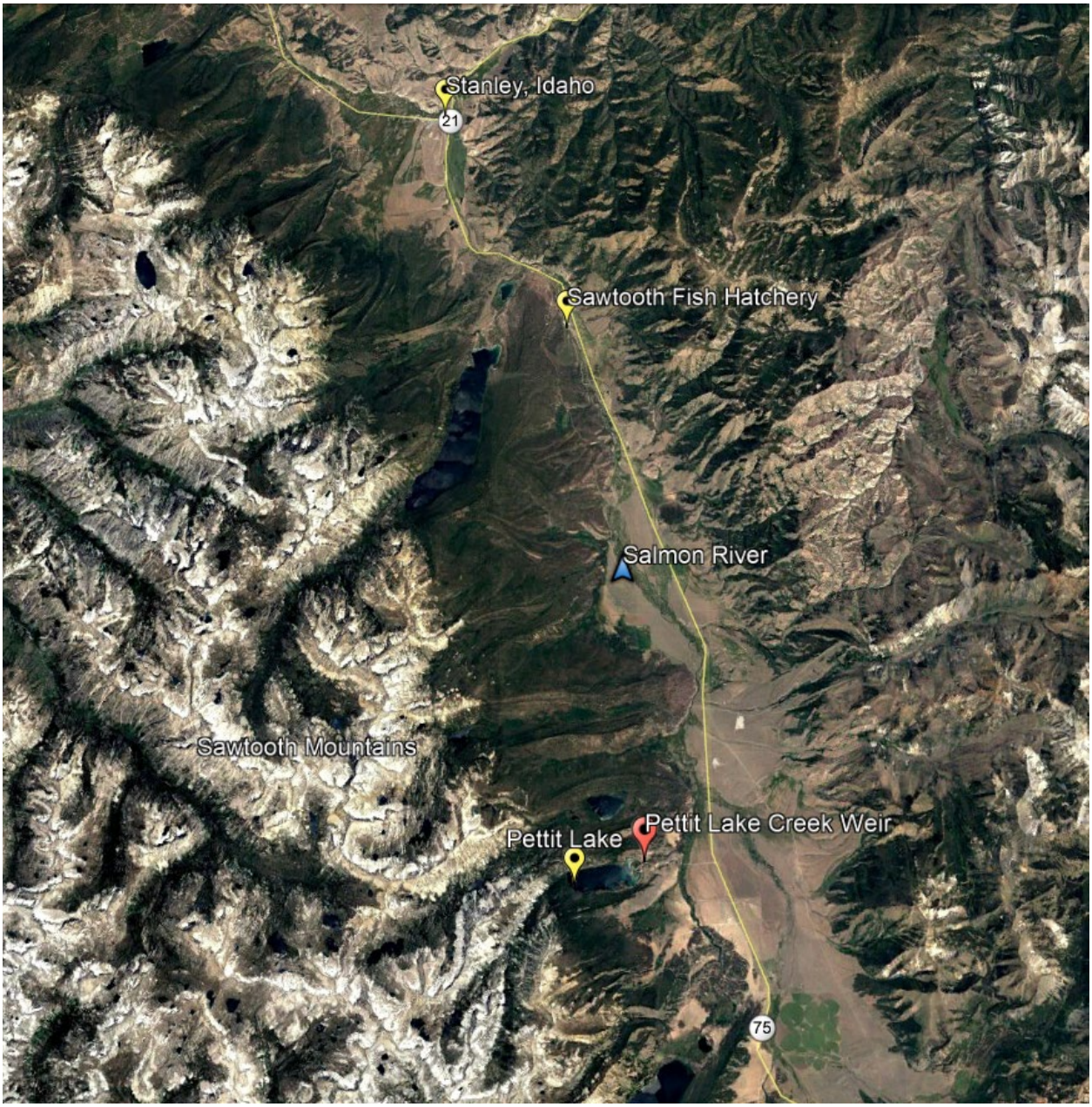
- Support efforts to mitigate for effects of the development and operation, of the Federal Columbia River Power System, on fish and wildlife in the mainstem Columbia River and its tributaries, including the Snake River, under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. § 839 et seq.).
- Help Bonneville meet its obligations under the Endangered Species Act (ESA) by fulfilling commitments begun under the 2008 NOAA[1] Fisheries Federal Columbia River Power System Biological Opinion (as supplemented in 2010 and 2014) (2008 BO) and ongoing commitments under the 2019 NOAA Fisheries Columbia River System BO (2019 CRS BO). The 2008 BO called for identifying tributary habitat restoration projects and the 2019 CRS BO largely continues the tributary habitat restoration program.
- Fulfill Bonneville's commitments under the 2018 Columbia River Fish Accord Extension agreement with the SBT.
- Implement BPA's Fish and Wildlife Implementation Plan Environmental Impact Statement and Record of Decision policy direction, which call for protecting weak stocks, like the Snake River Sockeye Salmon, while sustaining overall populations of fish for their economic and cultural value (BPA 2003).
- Minimize harm to natural or human resources, including species listed under the ESA (16 U.S.C. § 1531 et seq.).

[1] National Oceanographic and Atmospheric Administration

1.4 Location

Pettit Lake Creek weir is located on Pettit Lake Creek, approximately 0.2 miles downstream of Pettit Lake, near the headwaters of the Salmon River. The creek flows from Pettit Lake Creek weir for approximately 1.2 miles, to its confluence with Alturas Lake Creek, which then drains into the Salmon River approximately 20 miles upstream of Stanley, Idaho (Figure 1).

Figure 1 Location of Pettit Lake Creek weir



1.5 Background

1.5.1 Snake River Sockeye Salmon captive broodstock program

Precipitous declines of Snake River sockeye salmon led to their Federal listing as endangered under the ESA in 1991 (56 FR 58619). In that same year, a captive broodstock program was initiated by the IDFG and NOAA to maintain Snake River sockeye salmon and prevent species extinction. The near-term program goal is to prevent species extinction, slow the loss of genetic diversity, and increase the population of Snake River Sockeye Salmon. The long-term program goal is to reestablish Sockeye Salmon runs to the Upper Salmon River Basin, maintain a viable population, and provide sport and treaty harvest opportunities.

These goals are now part of the ESA "Recovery Plan for Snake River Sockeye Salmon" (NMFS 2015) which consists of three phases. Phase one focuses on population recovery and includes the captive broodstock program, which has been critical in maintaining the Snake River Sockeye Salmon population, preserving genetic diversity, and preventing this species' extinction. The program is now transitioning into phase two, the recolonization phase, which would incorporate more natural-origin Sockeye Salmon in the hatchery-spawning program and provide anadromous adults to recolonize available habitat in Redfish, Pettit, and Alturas lakes. This phase focuses exclusively on smolt and adult releases to Basin lakes (primarily Redfish and Pettit) in the next decade or so. The SBT's investigations of lake habitats and populations in Pettit Lake, and their use of the Pettit Lake Creek weir, are in support of these releases.

1.5.2 Pettit Lake Creek Weir

The Pettit Lake Creek weir was constructed, in 1995, approximately 0.2 miles downstream of Pettit Lake. It is a removable weir affixed to a channel-spanning concrete sill. It was designed for the collection of all out-migrating juvenile salmonids; from these, up to 50 natural *O. nerka* smolts per day are PIT-tagged and released downstream at sunset. The trap structures for the Pettit Lake Creek weir are installed, annually, in mid-April and removed in mid-June. It is not in operation during the late-summer to early-fall adult migration.

The weir's design was based on a 1994 feasibility study, which indicated a peak discharge of 57 cubic feet per second (cfs) for Pettit Lake Creek. However, discharges exceeding 100 cfs have occurred routinely, and therefore the weir's design has been inadequate for its intended uses.

The weir itself is a vertical, flat-plate barrier with perforated (slotted) panels, which relies on sweeping flow to clean the attached panels (Figure 2). However, with flows exceeding the design capacity, the weir routinely experiences overtopping, backwater flooding, and debris accumulation. Debris accumulation blocks the perforations in the panels, decreasing flow-through, and exacerbating the backwater flooding and weir overflow. Overtopping makes weir operation difficult and hazardous for the operators during spring trapping; backwater flooding contributes unnecessarily to mortality of endangered Sockeye Salmon juveniles.

Figure 2 Pettit Lake Creek weir showing flat-plate slotted barrier for juvenile salmon capture

Overtopping conditions also prevent collection of accurate and precise data. Modifications to the existing weir, to allow more passable flow and alleviate some of the safety issues were considered, but design criteria established by the National Marine Fisheries Service, preclude the enlargement of slotted screen openings which could have achieved this purpose.

A different design that resolves safety issues, accommodates the creek's actual and natural flow, reduces mortality, and provides for effective clearing of debris so accurate information can be obtained, has been proposed by the Shoshone Bannock Tribes and is under consideration as the Proposed Action (as described fully in Chapter 2).

1.5.3 Shoshone Bannock Tribes of Fort Hall

The SBT are comprised of the eastern and western bands of the Northern Shoshone and the Bannock, or Northern Paiute, bands. Ancestral lands of both tribes occupied vast regions of land encompassing present-day Idaho, Oregon, Nevada, Utah, Wyoming, Montana, and into Canada. The Tribes historically subsisted as hunters and gatherers, hunting wild game and fishing the region's streams and rivers, primarily for salmon.

The SBT has a Fish & Wildlife Department whose mission is to protect, restore, and enhance fish and wildlife related resources. Under this department, the Tribal Sockeye Program conducts investigations of lake habitats and Sockeye Salmon-specific monitoring and evaluation in Redfish, Alturas, and Pettit lakes in support of the collaborated Snake River Sockeye Salmon captive broodstock program. The SBT conducts juvenile out-migrant monitoring on outlets from Pettit and Alturas lakes using a weir below Pettit Lake and a screw trap below Alturas Lake where Sockeye Salmon smolts are PIT-tagged, have data recorded, and biological samples taken.

The SBT implements tributary habitat restoration actions and monitoring for listed salmon and steelhead species within the Salmon and upper Snake River subbasins. These projects include the "Snake River Sockeye Salmon Habitat and Limnological Research Project", which was implemented in 1991. The SBT receives funding from BPA under the 2008 Columbia Basin Fish Accords Memorandum of Agreement, as extended in 2018, among the SBT, BPA, the US Army Corps of Engineers and the US Bureau of Reclamation; and collaborates on projects with the National Marine Fisheries Service (NMFS), Idaho Department of Fish and Game (IDFG), and the University of Idaho. Project tasks include: 1) monitor annual and inter-annual variation of limnological parameters of the Sawtooth Valley lakes to assess lake productivity, specifically the relationships between forage base and Sockeye Salmon communities; 2) conduct lake fertilization in Pettit and Alturas lakes; 3) monitor and potentially reduce the number of mature kokanee salmon spawning in Alturas Lake Creek; 4) monitor, enumerate, and evaluate Sockeye Salmon smolt migration from Pettit and Alturas lakes; 5) monitor spawning kokanee escapement and estimate fry recruitment in Fishhook and Alturas Lake creeks; 6) conduct Sockeye Salmon and kokanee population surveys; 7) when applicable, evaluate potential competition between stocked juvenile Sockeye Salmon and a variety of fish species in Redfish, Pettit, and Alturas lakes; and 8) assist IDFG with captive broodstock production activities, as necessary.

1.5.4 Sawtooth National Recreation Area

The Sawtooth National Recreation Area is in central Idaho and is managed as part of the Sawtooth National Forest. The SNRA was established in June 1972, to assure the preservation and protection of the natural, scenic, historic, pastoral, and fish and wildlife values and to provide for the enhancement of the recreational values (USGPO 1972). Establishing legislation directed land management "in such a manner as would best provide", among others, "the protection and conservation of salmon and other fisheries"; and "the conservation and development of scenic, natural, historic, pastoral, wildlife, and other values, contributing to and available for public recreation and enjoyment"[2].

1.5.5 Bonneville Power Administration

BPA is a federal power marketing agency within the U.S. Department of Energy with responsibility for marketing and selling power generated by the Federal Columbia River Power System. BPA's operations are governed by several statutes, including the Northwest Power Act. The Northwest Power Act directs BPA to protect, mitigate, and enhance fish and wildlife affected by development and operation of federal hydroelectric facilities on the Columbia River and its tributaries in a manner consistent with the Northwest Power and Conservation Council's (the Council) Columbia River Basin Fish and Wildlife Program (Program), the Council's Power Plan, and the purposes of the Act. *See* 16 U.S.C. § 839b(h)(10)(A). The Council is an interstate agency established under the authority of the Northwest Power Act to develop and maintain a regional power plan and a fish and wildlife program to balance the Northwest's environment and energy needs. The Northwest Power Act directs the Council to develop a program to "protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries... affected by the development, operation, and management of hydroelectric projects while assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply." (NPCC 2014). The Council recommends fish and wildlife mitigation for BPA funding and the Council's Independent Scientific Review Panel periodically reviews most BPA-funded fish and wildlife mitigation projects for consistency with the Program.

2 16 USC CHAPTER 1, SUBCHAPTER LXXXV: SAWTOOTH NATIONAL RECREATION AREA

1.5.6 Columbia Basin Fish Accords and Extension

On November 7, 2008, BPA signed the 2008 Columbia Basin Fish Accords with the SBT, the US Army Corps of Engineers, and the US Bureau of Reclamation; the parties extended this agreement in 2018. The 2018 Fish Accord Extension includes BPA funding commitments for the Pettit Lake Creek Weir Project, subject to compliance with applicable law, including environmental review under NEPA.

1.6 Decision Framework

This document has been prepared to describe the purpose and need for the action, and to discuss and disclose the details of the alternatives. Given the USFS and BPA purpose and need, the deciding officials would review this assessment and the project record in order to make the following decisions:

- Whether the proposed activity would meet the objectives of the Sawtooth National Forest Land and Resource Management Plan, as amended (USDA Forest Service, 2012), and meet the purpose and need for the project.
- Whether the proposed activities comply with Public Law 92-400.
- Whether to authorize and fund implementation of the proposed action, or an alternative to the proposed action.
- If implementation of the action is approved, what operating standards, design features, and mitigation measures should be applied before, during, and after the activities occur.

1.7 Management Framework

The Sawtooth Forest Plan serves as the guiding direction for on-the-ground project planning and implementation. In addition to Forest-wide standards and guidelines, the Sawtooth Forest Plan provides specific management direction for activities in each management area.

The proposed project is located in an area designated by the Sawtooth Forest Plan as *Management Area 2, Upper Salmon Valley*. Within Management Area 2, the project falls under a specific management prescription of "*Active Restoration and Maintenance of Aquatic, Terrestrial, and Hydrologic Resources"*. The objective of this prescription is to actively restore or maintain conditions for fish, wildlife, and botanical resources, through a combination of management activities and natural processes.

Evaluation of the effects of authorization and funding for the Pettit Lake Creek Weir Construction project (the Proposed Action) has been conducted to ensure consistency with the direction established in the Forest Plan. Consistency with Forest Plan direction is documented in the Forest Plan Consistency checklist, on file in the Project Record.

1.8 Public Involvement

To help determine issues to be addressed in the EA, the Sawtooth NRA conducted public outreach. SNRA mailed letters on February 14, 2020, to landowners, tribes, government agencies, and other potentially affected, or concerned, citizens and interest groups. The public letter provided information about the Proposed Action, requested comments on issues to be addressed in the EA, and described how to comment (mail, fax, telephone, and the SNRA website). The public scoping letter was posted on the SNRA's project website, https://www.fs.usda.gov/project/?project=57096 , to provide information about the project and the EA process.

The 30-day public comment period began on February 19, 2020, and the SNRA accepted comments on the program from the public until March 20, 2020. This comment period resulted in four responses relating to aquatics, long-term monitoring and oversight, fisheries, ESA consultation, equipment staging, parking, visuals, removal of improvements when use of the weir ceases, and a weir modification action alternative.

Chapter 2. Proposed Action and the No Action Alternative

The Proposed Action consists of two distinct parts comprising three separate federal actions.

The first part is the issuance of a 20-year special use permit, by the SNRA to the SBT, for continued operation of a fish trap weir on Pettit Lake Creek. The permit would authorize the use and occupancy of approximately one half-acre of NFS lands; these operations support the ongoing, multi-agency, recovery efforts benefitting the endangered Snake River Sockeye Salmon population. This part is discussed in Section 2.1.

The second part of the Proposed Action concerns the construction of a new weir on Pettit Lake Creek, which is an eligible wild and scenic river segment with a scenic classification. The segment contains fish as an outstanding and remarkable value. Pettit Lake Creek provides excellent spawning and rearing habitat for Chinook, steelhead, sockeye salmon, and bull trout. It is also the only migration corridor for endangered Snake River Sockeye to access Pettit Lake Creek. This designation requires an authorization action by the SNRA and a funding action by BPA. Design updates to the existing in-stream weir are necessary to accommodate annual flows exceeding the design capacity of the current weir; specifically, reconstruction of the existing weir, construction of an access road to the weir, and weir operations. This part is detailed in Section 2.2. In addition, the removal of remaining IDFG rough fish barrier abutments upstream of the weir, is included in the Proposed Action.

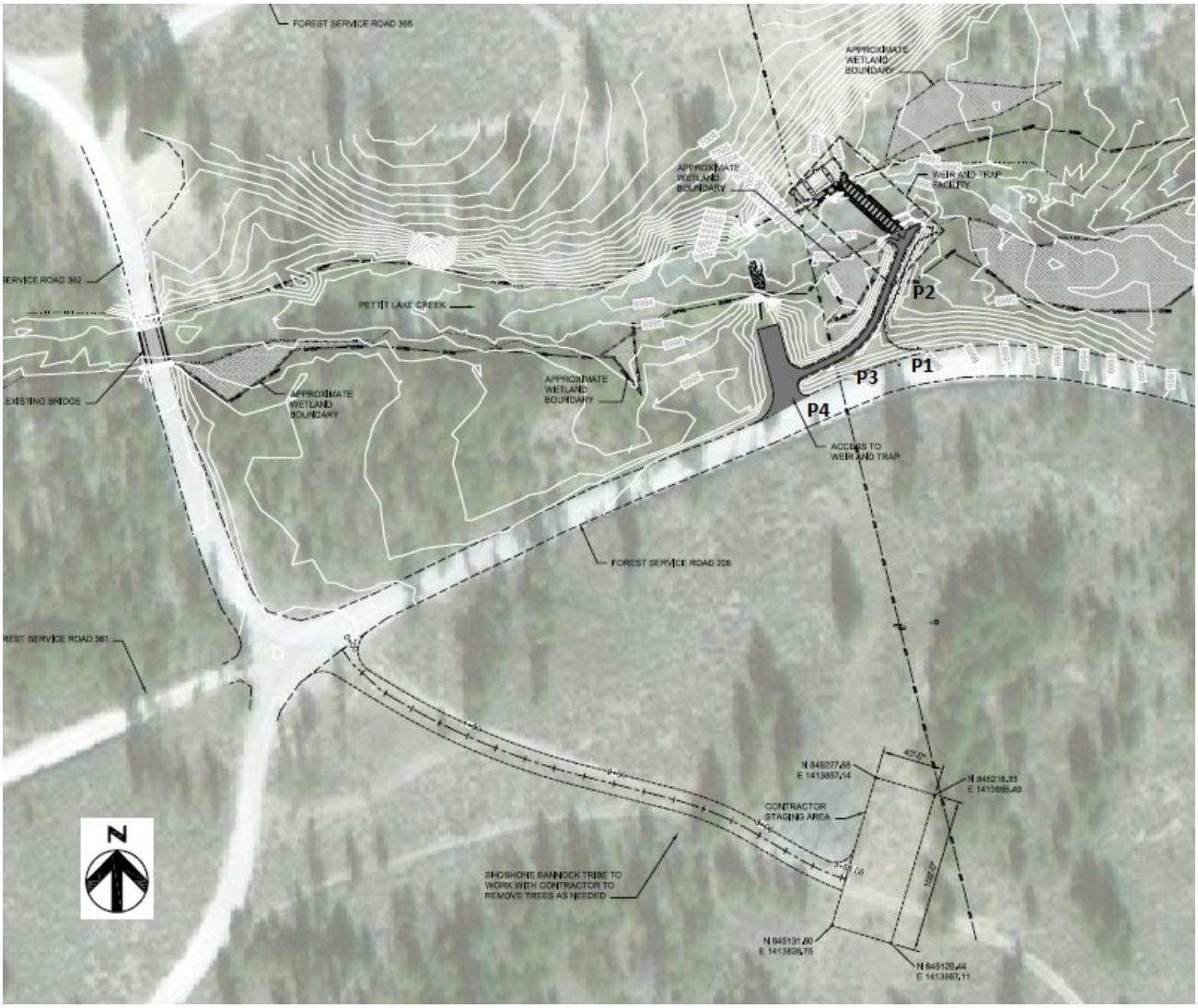
A No-Action Alternative is addressed in Section 2.3. Alternative fish-trapping structures that were considered, but not evaluated in detail, are discussed in Section 2.4.

The third federal action, not covered by this EA, is the issuance of a Clean Water Act 404 permit by the Army Corps of Engineers.

2.1 Proposed Action

Under the Proposed Action, a newly designed weir would be constructed at the site of the current weir on Pettit Lake Creek (Figure 3). As part of this Proposed Action, remnant abutments from a previously removed fish barrier upstream of the new construction would be removed.

Figure 3 Alignment of proposed weir, access, work area, and staging area*



*Photos from locations labeled as P1 through P4 in the figure are depicted as Figure 4.

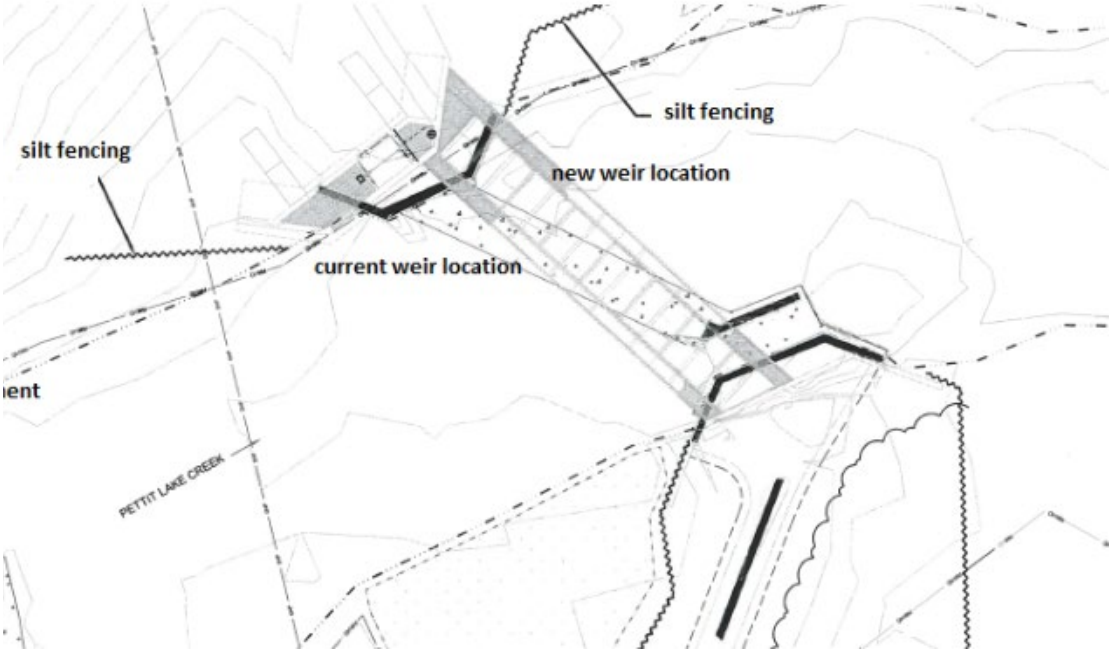
Figure 4 Photo points in Figure 3 (P1 through P4 clockwise from upper left)

2.1.1 Project Design

The proposed new structure would be designed to meet SBT requirements for a collection facility at Pettit Lake Creek and would apply the criteria established by NMFS (NMFS 2011) for this type of structure. The new structure would be larger, with a new sill, new abutments, and an effective vehicle access to the structure (Figures 5 and 7). Visual considerations, such as paint color and architectural design of structures, would be designed to meet Sawtooth National Recreation Area requirements.

The removal of the remaining IDFG rough-fish barrier abutments, upstream of the weir, is included in the proposed action.

Figure 5 Proposed new weir structure, access road, and old abutments relative to placement of current weir



The proposed action would also include repair of the wash-out around the current right bank abutment (Figure 6). This washout occurs annually and is caused by the current weir's inadequate design, as described in Section 1.5.2.

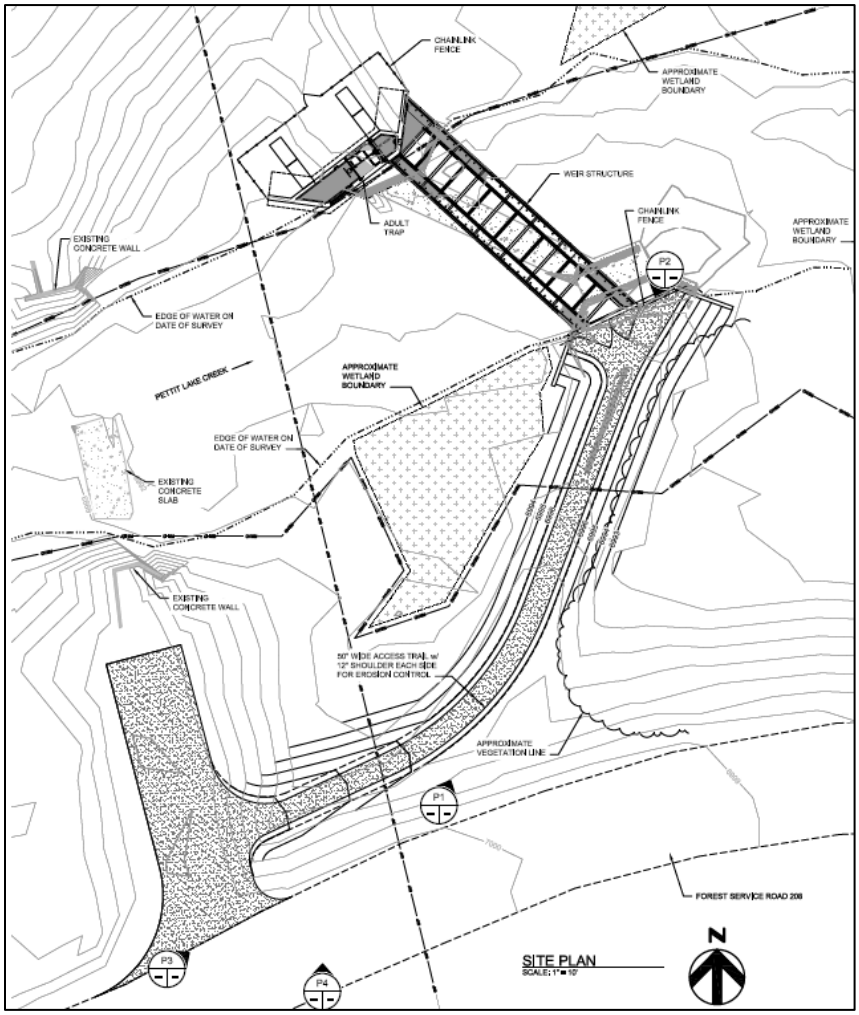
Figure 6 Washout in area at end of proposed access road to right bank abutment (current abutment visible in upper left)

The facility currently has no vehicle access to the weir. As part of construction, a temporary access road and work area would be built. The road would take off from an existing, previously disturbed, off-road parking site, upstream of the current weir; it would terminate at a designed working area on the right bank of the creek, adjoining the weir's right-bank abutment. Following construction, the access road width would be reduced to 50 inches, to allow for ATV access while restricting vehicle access.

2.1.2 Project Access and Staging Area

A spur to the weir site, from Forest Road 208, would be constructed from the existing parking spur, atop the right bank abutment fill for the long-abandoned IDFG fish barrier site. It would incorporate a work area and temporary parking, as shown in Figure 7, to provide an off-road parking location while operating the weir. The surface would be graded and compacted; a layer of gravel would be added to maintain the traveling surface and minimize erosive runoff. Gravel from certified weed free sources at the Champion Creek gravel pit would be used. Disturbed areas would be monitored for noxious weeds by the SNRA botanist for three years. If noxious weeds are found, they would be treated using approved methods described in the Sawtooth Invasive Species ROD (2018).

Figure 7 Proposed weir access



A staging area is proposed on previously disturbed ground south of the weir site (Figure 3). It would be used for the parking of construction equipment; temporary storage of materials and supplies (during construction); and temporary waste disposal (until its ultimate disposal off National Forest System lands). The staging area is not visible[3] from Forest Roads 208, 361, 362, or 365.

[3] Though the staging area is not visible, it is possible that large vehicles or materials placed there, depending on their height, may be visible from Road 208 during the construction period.

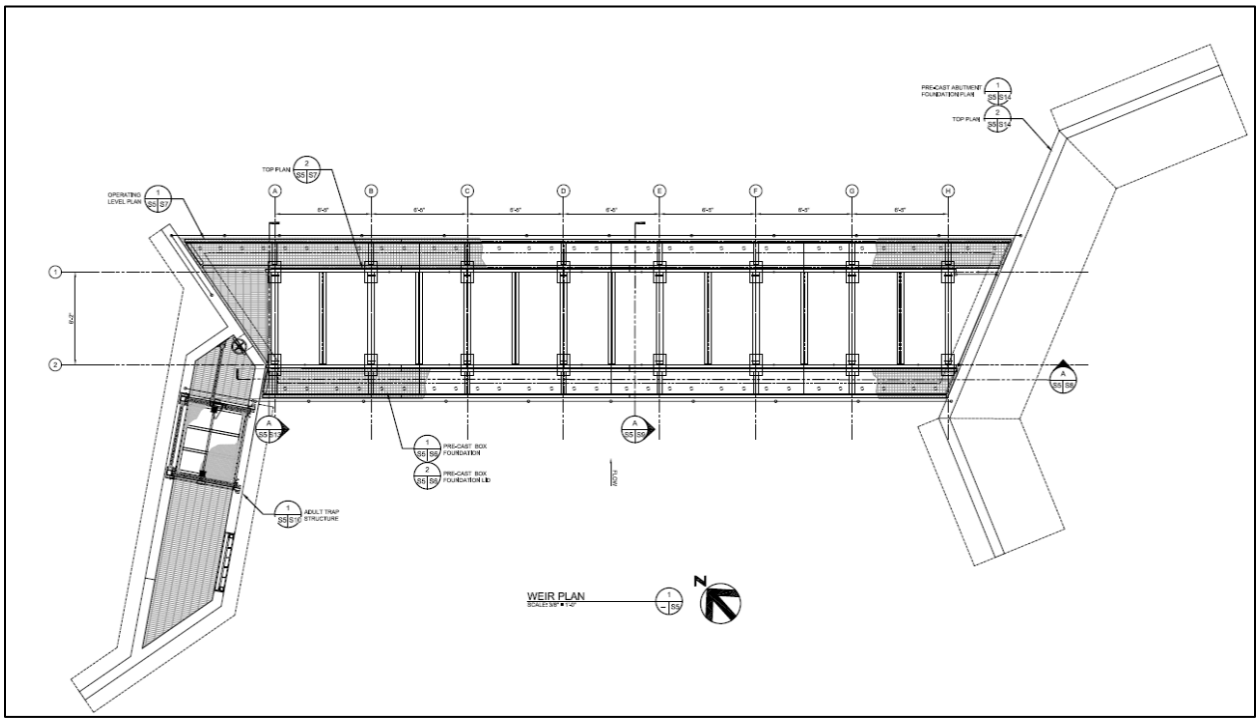
The staging area would be located near a log deck along Forest Road 362, approximately 350 feet south of the weir location and 300 feet from Pettit Lake Creek (at its closest point). It would be accessed from the junction of Forest Road 208 and 362, then along Forest Road 362 (currently closed) approximately 420 feet to the southeast. The road beyond the staging area would be blocked to vehicle access during construction. After completion of construction, the access road and staging area will be re-seeded with native species and the road will be .

2.1.3 Project Layout

The general layout of the proposed facility is illustrated in Figure 5; the new structure would be constructed, generally, within the footprint of the existing structure.

The design would include a bridge weir within the creek and an adult trap and holding box on the left bank (Figure 8), in anticipation of sampling needs resulting from increased Snake River Sockeye Salmon spawning returns.

Figure 8 Proposed weir design



2.1.3.1 Sill (foundation of weir)

The weir sill, per NMFS criteria, would be a uniform concrete surface. The uniform sill provides a solid surface against which the weir panels can seal to prevent fish from going under the trap.

The sill would consist of a precast concrete box-like section (Figure 9) that is filled with native substrate (Figure 10) and a lid secured to the channel section. This design's benefit is that the sections and lid could be precast and delivered to the site for easy installation. No field cure time is needed for the concrete. The precast units would have a connection system that would allow for ease in securing the lid to the vault. The vault would be constructed with weep holes to prevent buoyancy forces from misaligning the structure over time.

To install the sill, a trench would be excavated in the channel and the base compacted as much as possible. The channel sections would be placed in the excavated area and the excavation spoil placed back into the box (Figure 10). The lid would then be placed on top of the channel sections and secured in place. The structural steel members of the bridge weir would then be anchored to the concrete lid (see Figures 9 and 10).

Figure 9 Precast sill box and lid design

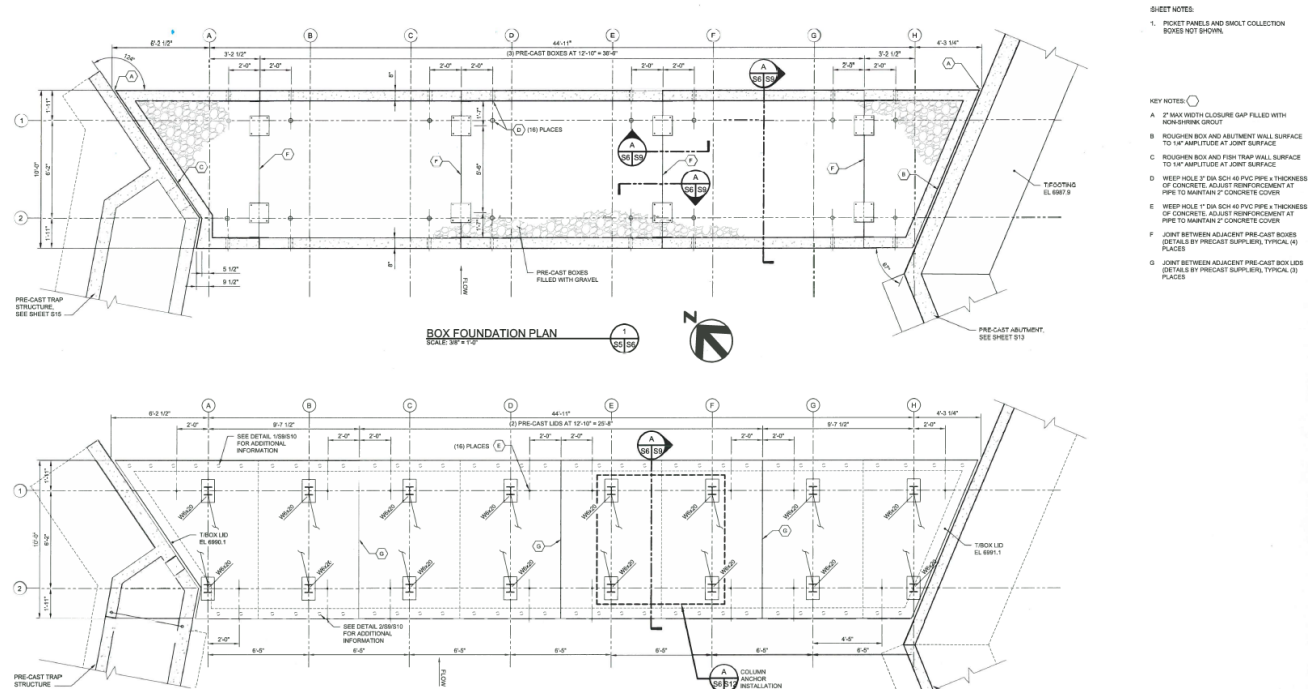


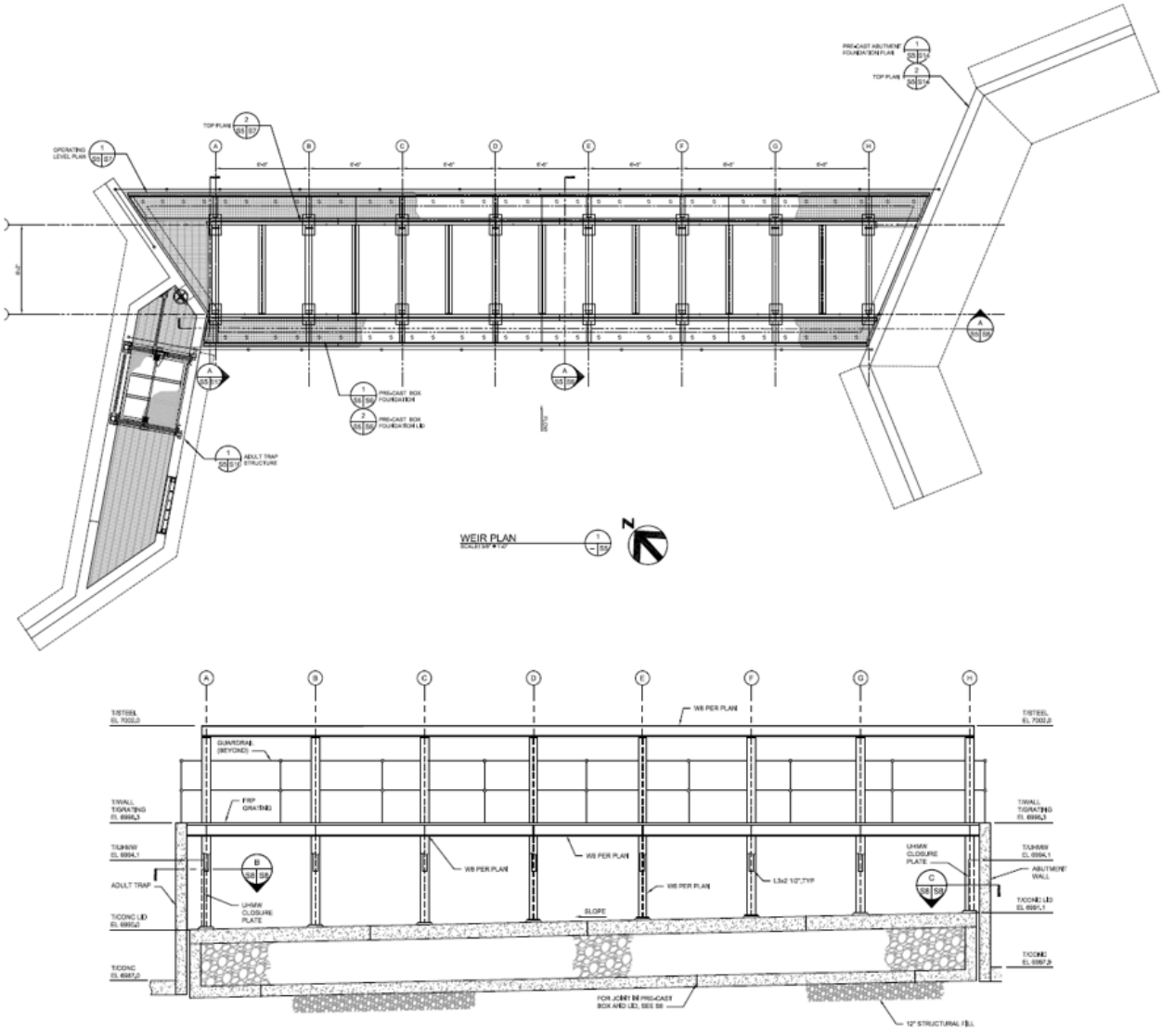
Figure 10 Typical sill construction (example from Redfish Lake Creek weir installation)

2.1.3.2 Bridge Weir

The bridge weir (Figure 11) would be fabricated off-site, in sections, and shipped to the site. The sections would either be connected on the sill, or on the bank, then set in place with a crane. The structure would be connected to the sill and to the abutments (visible in Figure 12).

The bridge span, from abutment to abutment, is 44 feet and stands approximately 12 feet from the sill. Closure plates would be placed between the vertical structural support steel and the concrete abutments to within ¾-inch to prevent escapement. The bridge would be set at a 10-degree angle perpendicular to the flow, and sloped to achieve a 1" drop from the right to the left bank to guide adult sockeye to the adult trap along the left bank.

Figure 11 Bridge Weir Design



The bridge would have a rectangular cross-section with walkways on both upstream and downstream sides of the weir (see example in Figure 12). The bridge would have seven "bays" that would house the smolt collection boxes and the picket panels (Figures 11 and 13).

The bridge weir would be fabricated from weathered steel, ASTM A588 and A847. This is a high strength, low-alloy, structural steel that has a better resistance to atmospheric corrosion than carbon steels. The weathered appearance (see Figure 12 for example) results from a rusted brown color that would adhere closely to USFS Sawtooth National Recreation Area visual requirements. Security gates, to prevent public access onto the weir after completion, would be placed at both ends of the bridge weir and would be designed to meet SNRA visual requirements.

Figure 12 Example of similar bridge weir construction at nearby Redfish Lake Creek

Smolt Collection Box Design

The smolt collection boxes will be installed in all seven bays to accommodate the anticipated number of fish. The boxes will be approximately 6.4-feet wide by 6.2-feet long. The top of the box will have a "bar grader" composed of ½ -inch round sorting bars along the full length with a 1-inch clear spacing. This will allow the smolts to fall through and into the box while debris and larger fish are passed over the bars and off the end of the box, downstream. The box will be fabricated of aluminum with an anodized finish to meet SNRA visual requirements. A stop log slot will be located immediately upstream of the box to convey the water and smolts into the box. A neoprene flap will be installed to seal the gap between the stop log and the smolt box.

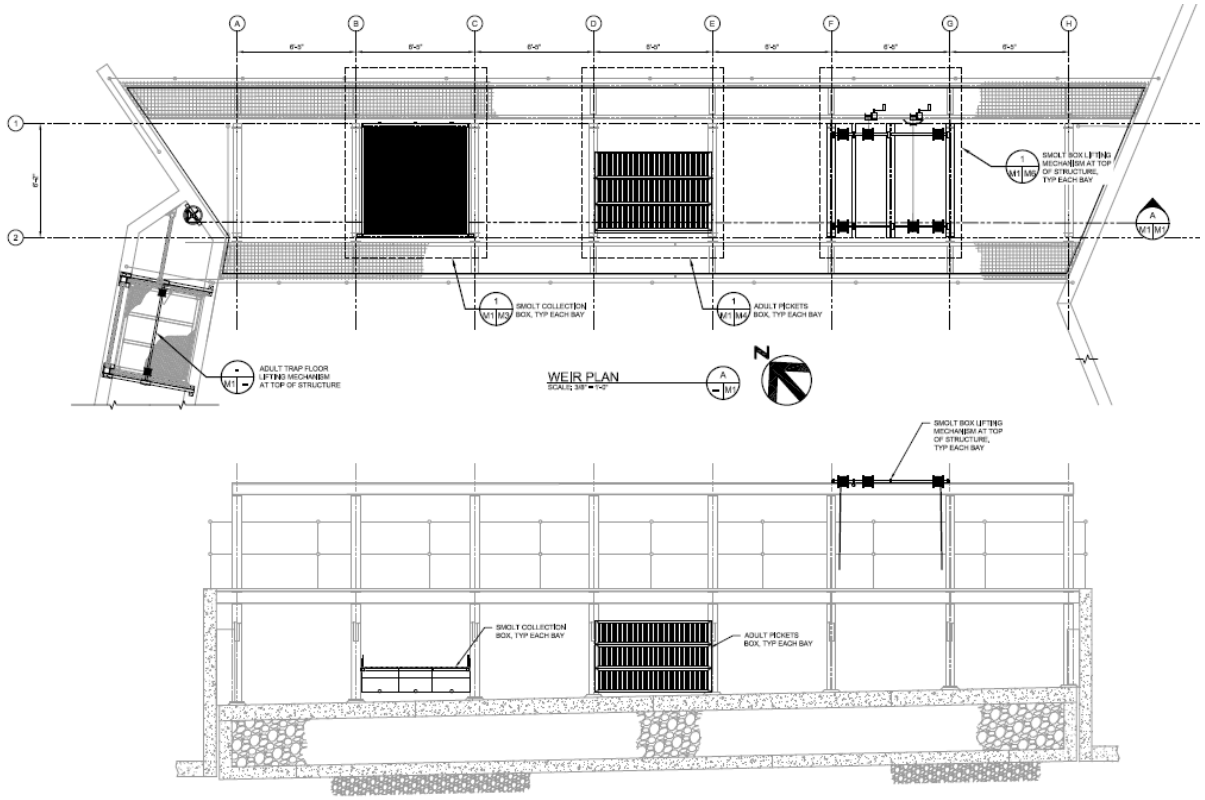
The smolt box will be mounted to a winch and pulley system to allow positioning of the box within the bay (Figure 13). Two winches will be used for positioning. The front of the box will have a pin or post that fits into a guide slot along the bridge column. This pin will maintain the box in position within the bay.

One winch will control the elevation of the box. During smolt removal, the winch and pulley system will allow the operator to lift each box up above the walkway level. Perforations in the side walls of the smolt box will allow water to pass out of the box as it was lifted up. During non-collection periods, the box could be completely removed from the site or could be secured in the up position for storage above the 100-year flood level.

The smolt trap is designed to capture a sample of the fish migrating downstream. It is designed to sample only the top 7 to 10 inches of the water column, and would not span the entire width of the

creek; up and downstream fish passage would be provided at all times below and around the trap boxes when they are in the trapping position.

Figure 13 Adult and smolt trap systems

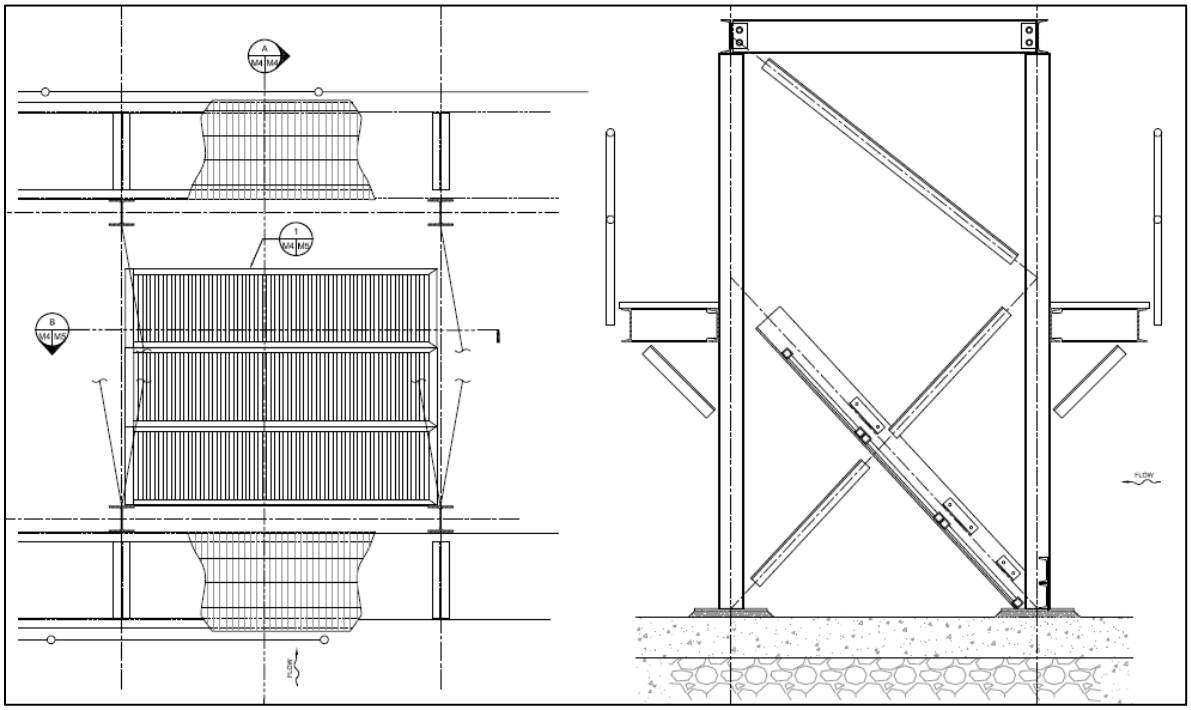


Adult Collection/Picket Panel weir Design

For adult collection, the smolt boxes would be secured in the up position above the 100-year flood elevation or removed entirely. Picket panels (Figures 13 and 14) approximately 6.25-feet wide and 2.33-feet tall and would be placed into a 45-degree guide slot. The guide slot would extend from the walkway down to the stop log slot at the leading edge of the weir. The picket panels would rest on the concrete sill, creating a secure seal to prevent fish from escaping underneath the panel. One short stop log would be placed in front of the panel to ensure that this seal was completed. The picket panels would be fabricated from aluminum with a tube or angle frame and ¾-inch diameter bars for the pickets. The clear spacing between the pickets would be 5/8-inch. Each panel would be set into the guide slot and lowered into position.

The smolt collection boxes would meet the IDFG and NMFS requirements for bar spacing and size. These requirements were utilized for the Redfish Lake Creek structure, with little adverse effect on the out-migrating smolts.

Figure 14 Adult Pickets (side and top view)



2.1.3.3 Trap Entrance, Water Intake, and Coarse Trash Rack

The trap entrance (at far left of top drawing in Figure 11) would consist of an 18-inch high by 12-inch wide opening to meet NMFS guidance criteria for a ladder-type orifice.

The water supply for the holding box would be diverted from the creek at the upstream end of the structure through a coarse trash rack (Figure 11). The intake opening be 2-feet tall and 4-feet wide. The sill of the opening would be approximately 6 inches above the substrate to help prevent substrate from entering the holding box. At high flows during non-collection periods, a solid plate could be inserted into the guide slot to prevent substrate material from entering the holding box and trap. The flow through the box and trap would be controlled by the tail water downstream of the weir and the entrance orifice.

The coarse trash rack would meet NMFS guidance criteria by providing a 10-inch clear spacing between the trash rack bars. The trash rack, installed over the intake opening in a guide slot, would be fabricated out of aluminum with a rectangular frame and 2-inch diameter tube or pipe for the rack members. The rack would be parallel to the flow, allowing sweeping flows to aid in removal of larger debris. The rack would be manually cleaned daily during the collection period.

2.1.4 Project Construction

2.1.4.1 Construction Methodology

Standard construction practices, materials, and equipment are anticipated on this project. This includes construction of a cofferdam to divert flows around the instream construction area. Additionally, work conducted on the adult trap and holding box would require the use of sloped excavations and dewatering pumps during construction.

Care would be taken when working in, or near, Pettit Lake Creek to prevent debris, erosion, and spills from entering the waterway.

2.1.4.2 Instream Work Window

The project is anticipated to take about 18 weeks from start to finish. Within that 18-week timeframe would be a 12-week period of work within the de-watered creek bed of Pettit Lake Creek. Four weeks of work outside of the stream would precede this 12-week "instream" work period, and two weeks of dry-land work would follow it.

Dry-land construction activities could begin as early as mid-July. In-water work could begin in mid-August and would be continuous throughout this 12-week period. Specific start dates are in-part dependent on the completion of the analysis and associated documents. Work would be conducted five days a week, generally starting around 8:00 AM and continuing until 8:00 PM. Work would not occur on federal holidays or weekends. The instream work could continue until mid-November, followed by an additional two weeks of dryland work with project completion at the end of November.

This assessment is proposing an instream work window beginning mid-August and extending to mid-November. The instream work window for the Salmon River and its tributaries, upstream of Valley Creek, is the end of the second week of July through the end of the second week of August (USBWP 2005). This is an approximate four to five-week window. A variance from this established in-water work window is being requested from IDFG and NMFS to accommodate the necessary in-water work.

The anticipated construction schedule (with ESA-listed fish presence in Action Area) is shown in Table 1.

Table 1 Construction Schedule and ESA-listed fish presence in Action Area

	April		May		June		July		Aug		Sept		Oct		Nov	
ESA-listed fish presence in Action Area																
Adult bull trout migration[1]																
Spring Chinook salmon spawning																
Juvenile out-migration[2]																
Construction Task																
Mobilize to site[3]																
Set up erosion and sediment controls[3]																
Clear and grub construction footprint																
Construct access road to weir																
Install bypass																
Install coffer dams																
Dewater/fish salvage																
Demolish existing weir																
Excavate for weir and abutments																
Place sill boxes and abutments																
Form and pour trap and holding box																
Install prefab weir structures																
Install smolt boxes and picket panels																
Install grating, handrails, fencing, etc.																
Remove coffer dam/re-water																
Final grading																
Site rehabilitation																
Operations																
Spring juvenile sockeye trapping																
In-migrating adult sockeye trapping																

[1] Adult pre-spawn migration to spawning areas in light green; Adult out-migration in dark green
[2] all ESA-listed juvenile salmonids potentially present (sockeye, bull trout, and Chinook)
[3] This non-soil-disturbing work may be authorized to begin in July; otherwise, early August
[4] No instream work will commence until completion of all ESA documentation (BA, BO, and Stream alteration permits) are in place.

2.1.4.3 Construction Sequencing of Bridge Weir and Adult Holding Box

Contractors would mobilize to the site, set up all erosion and sediment controls, then clear and grub the site where necessary. The stream bypass (two 30-inch-diameter, 117-foot- long, pipes; one of corrugated metal, the other smooth plastic), would be installed along the right bank at a 2.1% slope. The cofferdams would be installed to route flows out of the current channel and into the bypass. The cofferdams would be constructed using one-yard soil sacks filled with washed gravel, or by using a water-filled bladder dam (see example, Figure 15).

The bypass pipes are designed to provide for downstream fish passage only. To provide upstream passage would have required a much larger pipe which would have required digging much deeper into the bank with excessive damage to both upstream and downstream wetlands, and construction of a new access spur. To provide upstream passage using a channel would have required the construction of a channel nearly the same size as the existing creek. The location of such a channel on the left bank would have required extensive excavation into that bank, construction of a new access road to that work site, and would have affected a Category 1 wetland. If such a channel were to be constructed on the right bank, another Category 1 wetland would have been impacted and a new access road would also have to be constructed.

Figure 15 Example of coffer dam and bypass pipes for Redfish Lake Creek weir construction

Once the site is de-watered, the existing weir would be demolished and removed. The foundations for the new concrete sill and abutments would be excavated and prepared for precast concrete structure placement. All precast concrete and structural components would then be placed. Abutment walls would then be poured. The slab and walls for the holding box and associated structures would then be formed and poured.

The remnant abutments from the former fish barrier may be removed while instream work is being conducted for the new weir. The timing of construction provides for effective access to the left bank without having to travel cross-country to that site from the north. Removal would be accomplished using the same equipment and techniques used for removal of the abutments serving the existing weir. Both abutments are set back from the stream and above the ordinary high-water mark, thus no instream work is required for their removal.

The bridge structure would be fabricated off-site, in sections. Each section would be installed onto the concrete sill with a crane or excavator. Some flexibility would be included in the design and fabrication

to allow for minor adjustments to ensure that the structure was installed correctly. The smolt boxes and picket panels, would also be prefabricated and would be installed as the structural components were completed.

The trap and adult holding box and associated structures would be constructed concurrently with the bridge weir. Excavation of the foundation for the box would begin approximately one week after work began. Once cured, the trap, holding box, access grating, and handrails could be installed.

The cofferdam would then be removed, and final grading and site rehabilitation would occur.

2.1.4.4 Construction Equipment

The construction sequencing and timeframes outlined above assumed that the following equipment would be mobilized to the site:

- 300-class excavator
- 4-cubic-yard front-end loader
- 42-inch drum roller
- 140 road grader
- Dump truck
- Vibratory hammer
- Water truck
- Three to four de-watering pumps (with screened intakes)
- Generator

Only the excavator would operate within the de-watered creek bed/footprint of the weir facilities. Left bank disturbance would be limited to the installation of the new abutment and construction of the adult trap and holding box.

The front-end loader, roller, grader, and water truck would operate only on previously compacted road and parking surfaces.

2.1.4.5 Hazardous Material Handling

The risks of hazardous material handling would be mitigated by adhering to the design features of the project. Storage and use of these materials (e.g. fuel, solvents, hydraulic fluids), if used, would be at the staging area, 330 feet from Pettit Lake Creek. All use would be in compliance with the required Spill Prevention Plan (see Section 2.2.6, "Design Criteria"). Off-site disposal (off National Forest System lands) of all hazardous material would be required of contractors and operators.

2.1.5 Public Access and Safety

There is substantial public recreational use near the proposed facility at Pettit Lake, including a campground, boat launch, trailhead, and numerous recreational residences. Access to these recreational destinations is along Forest Road 208 and would bring the public within viewing range of the new facility. Public information signs would be placed along Forest Road 208, adjacent to the facility, to inform the public of the facility's purpose and operations. The SBT would work with the SNRA to provide an informative interpretive experience for the passing public.

Temporary restriction of public access, during portions of the day throughout the construction period, would be required to move large equipment in and out of work area, primarily at the beginning and end of the workday. These delays would generally be less than 10 minutes. Therefore, close coordination

with the SNRA would occur to provide construction status. Standard construction methods for isolation of the work area would be utilized to improve public safety.

Fencing for public safety and facility security would encompass the entire structure. Security gates would be installed for the protection of both the public and the fish at the weir at both ends of the fencing. The color and type of permanent fencing would comply with Sawtooth National Recreation Area visual requirements.

2.1.6 Design Criteria

The project involves working in, and near, Pettit Lake Creek, and near Pettit Lake; fill would be placed and removed below the ordinary high-water mark (OHWM). The proposed design criteria focus on decreasing chemical contamination, minimizing disturbance to fish, and eliminating erosion and subsequent sedimentation effects during construction. In consideration of these conditions, the following design criteria are proposed:

Site Preparation

1) Use sediment barriers such as filter fabric fences; weed-free straw matting/bales or fiber wattles, as necessary, in all work areas sloping toward Pettit Lake Creek, to intercept any surface flow that might transport sediment to the stream channel. Sediment barriers would be biodegradable and would be removed when no longer needed.
    a) Prior to starting work, a temporary filter fabric fence would be installed between all streamside disturbances and the creek, to prevent sediment from entering the stream. Accumulated sediments would be removed during the project and prior to removing the filter fence after completion of work.
    b) The type of filter fabric used would be based on soil conditions at the site: for soils that would pass U.S. standard sieve 200, the equivalent opening size (EOS) would be selected to retain 85% of the soil; for all other soil types, the EOS would be no larger than U.S. standard sieve 100.
    c) For standard-strength filter fabric, a wire mesh support fence would be fastened securely, to the upslope side of the posts, and the fabric stapled or wired to the mesh. If extra-strength fabric is used, the wire mesh fence may be eliminated.
2) All temporary erosion controls would be in place, and appropriately installed downslope of applicable project activities, until site restoration is complete.
3) Any large wood, native vegetation, weed-free topsoil, or native material displaced during construction would be stockpiled for use in site restoration.
4) Flows and weather conditions would be monitored daily for events that may cause extremely high flows. In such events, all equipment would be removed from the work site until flows have abated.

Water Quality Protection

1) The contractor would develop an adequate, site specific spill prevention plan which would include: site plan and narrative describing methods of erosion/sediment control; methods for confining/removing/disposing of excess construction materials and measures for equipment washout facilities; a spill prevention plan; and, measures to reduce/recycle hazardous and non-hazardous wastes.

2) The spill prevention plan would include the following information: notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures, proposed methods of disposal of spilled materials, and employee training on spill containment.

3) Uncured concrete and form materials would be treated as a hazardous material, with measures taken to avoid contact with the active stream channel. Concrete must be sufficiently cured or dried (48-72 hours depending on temperature) before encountering stream flow.

4) Materials for containment and cleanup would be available, onsite, during pre-construction, construction, and restoration phases of the project.

5) When reintroducing streamflow to a dewatered stream reach or conducting near stream/instream work, turbidity would be monitored every 30 minutes at the fully mixed zone. If turbidity level exceeds 50 NTUs over background levels work must cease immediately and measures to reduce turbidity must be taken before continuing to reintroduce streamflow or work within the stream channel.

6) Equipment used for this project operating with hydraulic fluid would use only those fluids certified as non-toxic to aquatic organisms.

7) All heavy equipment would be washed prior to entry onto National Forest System lands. Equipment used for this project would be free of external petroleum-based products. Accumulations of soil or debris would be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to its use within 150 feet of any water body.

8) Vehicle staging, cleaning, maintenance, refueling, and fuel storage would only occur at the designated staging area as described in Section 2.1.2, “Project Access and Staging Area”.

9) All stationary power equipment, such as generators, cranes, or stationary drilling equipment operated within 150 feet of any water body, would be diapered to prevent leaks unless suitable containment is provided to prevent potential spills from entering the water.

10) All waste material, such as construction debris, silt, excess dirt, or overburden resulting from this project, would be deposited above the limits of floodwater in an approved upland disposal site off NFS lands.

11) Appropriate containers for proper disposal of construction materials would be maintained in the staging areas before being taken to an approved facility off NFS lands.

12) Extreme care would be taken during both removal of the existing structure and new construction, to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials can enter or leach into the water bodies.

Operations

1) Stage construction equipment and materials at the designated staging area, as described in Section 2.1.2, “Project Access and Staging Area”.

2) Operate machinery, to the extent feasible from the top of the stream bank along adjacent uplands and previously cleared areas.

3) Topsoil from the locations of the new temporary access road and the new abutment construction sites would be stockpiled within range of use for site restoration following construction activities.

4) Fuel storage and equipment refueling would occur in the designated staging area only (Section 2.1.2). Best management practices (BMPs) would be observed and appropriate spill containment systems established.

5) Use water trucks daily to apply water to the construction area for dust abatement. Use screened intakes with openings ≤3/32-inch with approach velocities <0.40 feet per second to meet NMFS Pump Intake Screen Criteria (NMFS 1996b) to prevent intake of juvenile fish when pumping from NRA-approved water sources if source contains fish.

6) All equipment would be pressure-washed and inspected prior to entering the forest and after leaving the forest to remove vegetation and soil that may contain noxious weed seeds. Care would be taken to inspect and clean equipment undercarriages. If equipment leaves the project area, it would be inspected and cleaned upon return to the project.

7) Inspect machinery daily to identify and resolve fuel/lubricant leaks before commencing work activities.

8) Cover and stockpile excess excavated materials away from the creek and flank with sediment fencing to minimize fine sediment release into Pettit Lake Creek.

9) Transport surplus excavated materials off site to an approved receiving location, to be determined by the contractor and approved by the Sawtooth NRA.

10) Protect existing riparian vegetation to the greatest extent possible. Large trees would be avoided and protected. If a large tree must be removed, it would be uprooted and left in the floodplain with root wad attached.

11) No trees would be cut along the access road to the project area. One tree would be cleared along the access road to the staging area to the south of the project area.

12) Gravel for road maintenance would come from a certified weed-free source approved by the SNRA.

13) No camping or overnight use is allowed at the construction site unless authorized by the permit administrator.

14) Wheeled motorized access to the project site is limited to the dates the road is open to the public for wheeled motorized travel, May 1 through November 30.

15) Work is limited to weekdays; no work may be conducted on weekends and holidays.

16) To avoid disturbance to recreationists, work may not occur before 8 am or after 8 pm without prior authorization.

17) Temporary traffic delays on Forest Road 208 may be necessary to facilitate project work and protect the public. Traffic delays should be short-term in nature and generally less than 10 minutes.

18) Signs providing information or warning the public shall be posted where the public may be exposed to project activities.

Instream Construction Environmental Conservation Measures

1) Conduct instream work only during the 12-week work window variance authorized by NMFS and IDFG and described in Section 2.1.4.2, Instream Work Window.

2) Conduct excavation for installation of the weir abutments and adult trap/holding box from below the OHWM in the dry (since construction site would be dewatered and construction would occur during base flows). Operate machinery for instream construction from within the de-watered streambed or from previously compacted road and parking surfaces only.

3) No equipment would operate in active stream flow.

4) Place cofferdam materials (1-yard soil sacks or a water-filled bladder dam) using an excavator, working from the right stream bank and stockpiling cofferdam materials on top of the bank.

5) Tether soil sacks, if used, to prevent cofferdam failure, if high water flow occurs during implementation.

6) Comply with established requirements, for discharge to waters of the U.S., under the Clean Water Act, as administered by the U.S. Army Corps of Engineers.

7) Use diesel or electric sump pumps, if needed, to capture seepage flow from cofferdam areas. Pumps would be screened as per NMFS criteria to avoid intake of juvenile fish.

8) Capture leakage under the cofferdam, if possible, from the internal, upstream face of the cofferdam (using a small, caged pump, or a trailer-mounted pump with a screened intake, to prevent juvenile fish intake). Water would be pumped to a temporary settling basin, a bermed pond, a Baker tank or similar structure, or geotextile bags. Biofiltration materials would be used to return pumped water to the creek (e.g., filtration through straw bales). The settling pond, or tank, would be located at a site approved by the Sawtooth NRA.

9) Route silt-laden seepage water that is not feasibly captured to a settling system prior to discharge back into the creek, per permit requirements.

10) Implement fish salvage and release operations during dewatering, for construction of instream project elements, as follows:

    a. Ensure safe handling of all fish by using the SBT fisheries biologist, experienced with work area isolation, to conduct or supervise any required capture and release operation.

    b. Guide adult fish from the area behind the cofferdams to areas upstream, or downstream, of the construction area.

    c. Use beach seines (herding) and sanctuary nets (solid-bottomed) as part of any dewatering process, to herd, or capture and release (water to water transfer), all fish observed in the area.

    d. Electrofishing equipment would be used for fish salvage, and NMFS electrofishing guidelines (NMFS 2000) would be followed.

    e. Record species and lengths, using a fishery biologist, of any ESA-listed fish mortalities encountered, and provide those data to USFWS and NMFS.

11) Dewatered area would be pre-washed to settle fine sediment prior to re-watering the work site to reduce downstream turbidity impacts.

12) Install and remove cofferdams over several hours to allow streamflow to be reduced and re-watered gradually.

Restoration

1) Upon completion of all construction activities, all temporary structures, devices, materials, or equipment, would be completely removed from the site. Excess spoils, or waste materials, would be properly disposed of in compliance with federal, state, and local regulations.
2) To prevent future erosion and stem the invasion of noxious weeds, the disturbed areas would be seeded with a native seed mix that would provide wildlife benefit and erosion control. This seed mix would be approved, in advance, by a SNRA botanist.
3) Disturbed areas would be replanted upon project completion using native plant species approved by a SNRA botanist.
4) The access road to the staging area would be barricaded at the junction of roads 208 and 362.
5) Rehabilitate and reseed temporary roads, staging areas, and the worksite upon departure, using a seed-mix recommended by the SNRA botanist. Mechanical equipment would be used to de-compact the soil and barriers would be installed to prevent off road vehicle use. Slash and organic debris (duff and twigs) would be redistributed to aid in organic soil recovery and minimize visual unsightliness.
6) Plant stream banks with species approved by the SNRA botanist in areas where riparian shrubs have been disturbed or removed.
7) Bank stabilization material (i.e. willow clumps, revetment, root wads) would be immediately installed following completion of work at disturbed areas upstream and downstream of the weir to withstand 100-year peak flows. Stream gravels, round cobbles, and rip rap would not be used as exterior armor. Damaged banks would be restored to a natural slope pattern and profile that is suitable for establishment of permanent wood vegetation.
8) Return displaced substrates to the pre-disturbance condition (slope, composition, etc.).
9) Disturbed areas and areas of soil spoils would be graded and reseeded using a seed-mix recommended by the SNRA botanist.
10) Coordinate with the Sawtooth National Forest Invasive Plant Species program manager for proper noxious weed treatment of project areas. Notify IDFG and SNRA immediately if aquatic invasive species are observed during construction.

Facility Operational Environmental Conservation Measures

1) Routine maintenance to the weir facility would be conducted during low flow periods in the summer, primarily August, when high instream temperatures are likely to minimize use by fish species.
2) If non-routine maintenance is necessary outside of the low flow periods, the SBT would consult with the USFS, NMFS, and USFWS as necessary to ensure compliance with state, federal and local regulations for instream work.
3) Fencing, gates, and facilities will be treated/coated to reduce reflection and colored to blend into the characteristic landscape, per Sawtooth NRA visual requirements.
4) Operations would comply with terms and conditions of the Sawtooth NRA special use permit (see Appendix A).

Monitoring Actions

1) Conduct upstream turbidity monitoring prior to construction to determine baseline turbidity. Baseline data would be compared to turbidity measurements recorded during construction.
2) Conduct turbidity monitoring downstream of construction activities as a condition of the Clean Water Act Section 401 Water Quality Certification to be obtained for the project.
3) Install a temporary downstream turbidity monitoring station approximately 600 feet downstream during construction to record instantaneous turbidity measurements, as required for the Clean Water Act Section 404 permit/401 certification, as well as ESA Section 7 consultation documents.
4) Project rehabilitation monitoring and evaluation would occur for two years. Monitoring shall focus on 75% recovery of desired vegetative cover in riparian habitats and 70% recovery of desired native perennial vegetation in uplands. If vegetative cover is not achieved within 2 years addition rehabilitation measures would occur.
5) Replace planted shrubs and trees that are not surviving with similar, suitable native species approved by a Sawtooth NRA botanist.

Cultural Resource protections

1) If found, the Sawtooth NRA archaeologist will be notified immediately.
2) Protect any unanticipated cultural resources discovered during construction as follows:
    a. Stop work in the immediate vicinity of the discovery and protect find in place.
    b. Notify Tribes Project Manager, Sawtooth NRA Archaeologist, and BPA Environmental Compliance Lead immediately.
    c. Implement mitigation or other measures as needed in consultation with the Tribes, BPA, Sawtooth NRA, and Idaho State Historic Preservation Office.

Visual Protection Measures

1) Mature and older trees, and other suitable vegetation, within the project area would be maintained as screening between the weir and Forest Road 208, to the greatest extent possible.
2) Limit the removal of roadside vegetative screening between the weir and Forest Road 208. Work with the Sawtooth NRA landscape architect to develop a plan to mitigate visual impacts.
3) Ensure, to the greatest extent practicable, all above water weir components are treated/coated to reduce reflection and colored to blend into the characteristic landscape according to Sawtooth NRA requirements
4) Place construction fencing to identify the boundaries of the construction area to maintain existing vegetation and prevent construction activities from creeping outside of proposed disturbance footprint.

These design criteria are integral components of the proposed action and intended to reduce or avoid adverse effects on listed species and their habitats. All proposed project activities would be completed consistent with these measures.

2.2 No Action Alternative

Under the No Action alternative, the SNRA would not authorize, nor would BPA fund, the SBT to construct a newly designed weir on Pettit Lake Creek. For the purposes of this analysis, the No Action alternative presumes the SBT would not reconstruct the weir using other funding sources. Likewise, the SNRA would not issue a 20-year special use permit to the SBT for operation of the existing weir.

For this No Action alternative, the SNRA would issue a five-year special use permit for the existing weir, and SBT would continue operation of the existing weir.

2.3 Other Alternatives Considered

Three alternate means for addressing the issues with the existing weir and capturing out-migrating sockeye were considered, but ultimately dropped from further consideration.

2.3.1 Addition of Mechanical Screen Cleaning to Existing Weir

An alternative was considered that simply added a debris cleaning system to the weir currently in place. This system would have reduced the potential for overtopping flows and maintained the trapping capability of the existing weir. However, this alternative would have required bringing electric power to the site, added additional operation and maintenance tasks and costs, and, most importantly, would not have addressed the issues of the structure being undersized for the flows in the creek. It may have reduced the amount of stream overtopping but would not have eliminated the risk of backwater flooding, erosive flows, mortality to ESA-listed fish, and safety issues for operating personnel.

2.3.2 Screw Trap

A screw trap had previously been considered for smolt trapping, and previous attempts were made to use such a device at the Pettit Lake Creek weir's location. A screw trap, however, requires 2.5 feet of water depth, which Pettit Lake Creek does not have, and this creek's flow and configuration proved inadequate for successful screw trap operation.

2.3.3 Floating Inclined-Plane Trap

This trap is free-floating, like the screw trap mentioned above, and can operate in shallower flows than a screw trap. It would likely function effectively but would sample a low percentage of out-migrating sockeye salmon and have no capability for adult capture. It would also require tethering to the bridge at the crossing of Forest Road 362, which would not be consistent with SNRA visual requirements as there would be no available screening and would likely be subject to vandalism or theft.

Chapter 3. Affected Environment and Environmental Consequences

This chapter describes the existing environmental resources that could be affected by the Proposed Action and No Action Alternatives – the potential direct, indirect, and cumulative effects.

The effects are characterized as high, moderate, low, or no impact. Effects that were determined to be minimal or barely noticeable were characterized as "low", those that were more than negligible were characterized as "moderate", and those characterized as "high" were those of considerable impact. The effects levels are based on the analysis provided, which incorporates the considerations of context and intensity defined in the Council of Environmental Quality Regulations (40 Code of Federal Regulations [CFR] 1508.27). Design criteria that would help reduce or avoid impacts are identified in Section 2.1.6.

3.1 Short-term Direct Effects

Construction actions are described in detail in Section 2.2.4. The following, short-term, direct effects would result from those actions and drive the discussion of effects in the resource-specific sections that follow. For all the actions described below, the design criteria listed in Section 2.2.6 would be applied to minimize both the scope and intensity of potential effects.

Pettit Lake Creek would be re-routed and dewatered in preparation for the removal of the old weir and construction of the new. Dewatering exposes aquatic plants and animals (vertebrates and invertebrates) to environmental conditions to which they are not adapted (e.g. increased temperatures, exposure to air, deprived of water for gill function, etc.). Dewatering and rerouting stream flow can unnaturally concentrate flows, increasing water velocity in the re-routed flow at a time of year when depth and velocity would otherwise be less.

Figure 16 Area of Pettit Lake Creek streambed to be dewatered and impacted during weir construction

Heavy equipment would operate in the de-watered streambed and along the right stream bank. This equipment operation would displace and compact streambank soils and streambed sediments; damage or destroy riparian and aquatic vegetation; crush aquatic animals that may take refuge in gravels; and introduce the possibility of fuel, lubrication, and hydraulic fluid drips and spills into the dewatered

stream channel. Figure 17 displays the short-term effects of operations in the dewatered Redfish Lake Creek during reconstruction of the weir there. Substrate conditions at Pettit Lake Creek, however, are anticipated to contain fewer fines than shown in Figure 17, as it is composed of more sand and boulders, and would thus be less prone to sedimentation than was Redfish Lake Creek. The short-term effects of these actions would be high (see Sections 3.3, 3.4, 3.5, 3.7, and 3.11).

Figure 17 Example of short-term direct effects of instream work during Redfish Lake Creek weir construction

Dewatering of Pettit Lake Creek and re-routing of the flow during construction would require the herding, capture, and handling of listed fish species. This action would be guided by the design criteria prescribed in Section 2.2.6, under "*Instream Construction Environmental Conservation Measures*". As described there, instream construction would occur within the authorized instream work window (mid-July through mid-October). Dry land construction activities could occur on either end of this timeframe. The short-term adverse effects of fish salvage would be moderate (see Section 3.7).

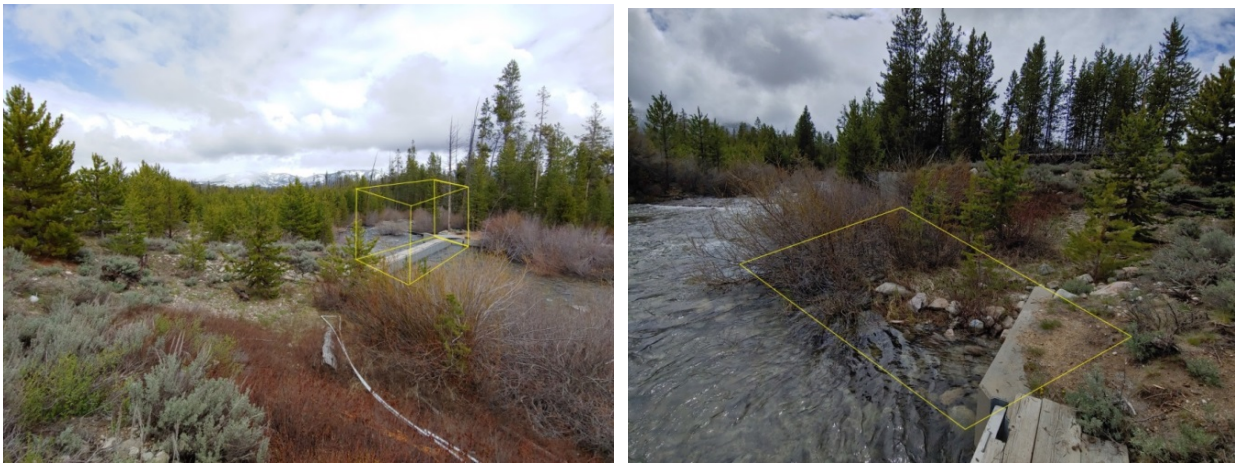
Heavy equipment would be operating on site. These operations displace and compact soil, reshape terrain, damage/destroy vegetation, create noise and vibration, introduce the possibility of fuel, lubrication, and hydraulic fluid spills and drips, and release exhaust gasses. The short-term adverse effects of these actions would be moderate to high (see Sections 3.3, 3.4, 3.10, and 3.12). The figures below display the locations and vegetative conditions that could be impacted by this action.

Figure 18 General area of potential disturbance from access road construction above right bank (viewing disturbance area from the left bank looking toward the right bank)

Figure 19 General area of potential disturbance from bypass installation (viewing disturbance area from the left bank looking towards the right bank)

The streambed and banks would be excavated as necessary to remove the existing weir and the remnant abutments upstream; and to install the precast weir sill, bank abutments, and the adult trap and holding box. This excavation would occur when the creek is de-watered. Excavation displaces stream bank soil and streambed materials and removes riparian and aquatic vegetation. Figure 20, below, shows the creek bed where this would occur; Figure 18 demonstrates the degree of effect that could be possible in the stream bed.

Figure 20 Areas of potential disturbance from weir and trap box construction



Following construction, the stream bed would be pre-watered prior to re-watering the creek to rinse fines down into the substrate and thereby minimize turbidity. Nonetheless, reintroduction of water would suspend some of the newly exposed and displaced soils and create turbidity in the stream. The short-term adverse effect of this action would be moderate (See Section 3.5 and 3.6).

Constructed facilities would permanently eliminate riparian and aquatic vegetation and natural habitat features within their footprint.

Human beings would be present and engaged in construction activities within Pettit Lake Creek, in the creek bed, on its banks, and on adjacent upland areas. Human presence and activity (movement, shadows, and noise) would be introduced and can disturb/displace fish and wildlife. The short-term adverse effect of human presence and activity would be low (See Section 3.7 and 3.8).

3.2 Long-term Anticipated Conditions

The direct effects described in Section 3.1 would be realized during one work season. Construction would be completed, and flows reintroduced, prior to winter and the next season of high flows. Design criteria, (Section 2.2.6) prescribed to protect resources immediately following construction activities, and restoration actions intended to reproduce the long-term functioning conditions of the stream bed, stream banks, and affected uplands would be taken before the first winter. Figures 21 and 22 display the completed conditions of the nearby Redfish Lake Creek weir construction project and exemplify the immediate and near-term conditions anticipated following construction actions at Pettit Lake Creek.

Operation of the new weir under the proposed design would stay within a footprint far smaller than the construction footprint and would not require any additional disturbance. Operations under the new weir are designed to stay within existing footprints with minimal disturbance. The road used to access the site during construction would be downsized and used as the pathway to access the weir for operations. Furthermore, disturbed areas under the current design (areas with back-flooding and

erosion) along with disturbance from construction would be rehabilitated under the proposed action and not disturbed by operation of the new facility.

Figure 21 Conditions at Redfish Lake Creek weir immediately following construction (taken in late fall at low flows)

Figure 22 Conditions at Redfish Lake Creek weir after two winters (taken in late spring at higher flows)

3.3 Vegetation

3.3.1 Affected Environment

The project area encompasses the area along Pettit Lake Creek, the pathway, the parking area, the access road, and the staging area. This riparian habitat is characterized by low-growing willows and Sitka alder with pinegrass, grouse whortleberry, rusty menziesia, and western Labrador tea. Scattered Douglas-fir, Engelmann spruce, and subalpine fir are present along Pettit Lake Creek with various associations of understory plants (Figures 23 and 24).

Figure 23 Vegetative conditions along Pettit Lake Creek (looking downstream)

The riparian habitat along Pettit Lake Creek is surrounded by a mosaic of lodgepole pine forest patches within larger expanses of sagebrush-grasslands (Figure 24).

Figure 24 Vegetative conditions immediately surrounding Pettit Lake Creek Weir

The project area is within the range of one federally listed threatened species, Ute ladies'-tresses orchid (Spiranthes diluvialis), and one candidate terrestrial plant species, whitebark pine (Pinus albicaulis). No federally listed or proposed plant species are known to occur in the area, but potential habitat exists for

Ute ladies'-tresses. Ute ladies-tresses orchid is not known to occur within the project area. The project area is within whitebark pine's range, but below the elevation at which this species occurs.

The SNRA has known occurrences and/or provides habitat for 34 Forest Service Sensitive and Watch plant species. Records do not indicate any known occurrences of Regional Forester's Sensitive plant species within the area of the Pettit Lake Creek weir. Forest Watch species Buxbaum's sedge has known occurrences within the analysis area.

In the Pettit Lake area, there are non-native invasive species growing in areas that have ongoing disturbances such as trails, parking areas, campgrounds, and along roads. Spotted knapweed, cheatgrass, and Canada thistle can be found at various places along roads in the area. All sites with noxious weeds have viable seed in the soil and movement of this soil scarifies the seed and aids in germination as well as moving seed to other locations.

3.3.2 Environmental Effects on Vegetation

Proposed Action

Construction activities would damage or eliminate vegetation over approximately 0.5 acre to varying degrees along a 300-foot long reach of Pettit Lake Creek, and at the two remnant abutment locations upstream.

Upland and riparian vegetation would be lost where the temporary access road/long-term access pathway would be constructed between Forest Road 208 and the new weir on Pettit Lake Creek. Likewise, riparian vegetation would be lost where the new abutments and adult holding box would be located.

Upland and riparian vegetation would be removed for the staging area and for the temporary placement of the stream bypass along the right bank of the creek but would be replanted with native upland and riparian species upon restoration of flows to the creek following construction and removal of the bypass pipes.

Restoration planting would also occur on the staging area and all sites temporarily disturbed during construction.

The effects of the Proposed Action on vegetation would be low to moderate.

Operation of the new facility would have a low effect on vegetation as all operation is designed to stay within the current footprint or construction footprint.

No Action

The No Action Alternative would not construct a new weir and thus not construct a staging area, install pipes for stream dewatering, nor construct an access route and new sill with abutments. There would be no effect on vegetation. However, future operation of the current weir would result in continued erosion, washout, (Figure 6) and back flooding on the right bank side of the weir thus effecting the vegetation in those locations.

3.4 Geology and Soils

3.4.1 Affected Environment

The Pettit Lake landscape is dominated by glacial topography. Glaciation as recent as 14,000 years ago carved the Sawtooth Range and left glacial moraines which are now forested along the base of these mountains. The weir site is located on a gently undulating glacial outwash plain between two of the five glaciers that formed the U-shaped glacial valley in which Pettit Lake is located.

The topography is relatively flat.

Soils are primarily unsorted glacial till and, therefore, gravelly and sandy, relative well-drained, and prone to erosion.

3.4.2 Environmental Effects on Geology and Soils

Proposed Action

Soils would be displaced and compacted wherever heavy equipment would be operating. Soil horizons would be mixed, but topsoil would have been stockpiled prior to construction activities for use in restoring the site. Operations would not further disturb soils as operations would stay within current footprint and construction footprint.

Effects of the Proposed Action on soils and geology would be low for both construction and operation of the new weir.

No Action

The No Action Alternative would have no construction activities and no use of heavy equipment. There would be no effect to geology or soils. Annual wash-out from the current weir occurs along the right bank and would continue under the No Action Alternative further eroding the current pathway used to access the weir (Figure 6).

3.5 Water

3.5.1 Affected Environment

Pettit Lake Creek is primarily a low gradient meandering Rosgen (1996) 'C' channel with no irrigation withdrawals and no fish passage barriers (other than the weir being replaced) in the project area. Almost the entire Pettit Lake Creek watershed is designated wilderness above Pettit Lake with very few impacts to water quality or aquatic habitats. Stream conditions there are believed to be near natural conditions and water quality is high. Recreational activities in and around the lake would be the primary source of sediment and potential chemical pollutants, though no contaminant issues have been reported.

Forest Service assessments have concluded that watershed condition is "functioning appropriately" in the Pettit Lake drainage (NMFS 2015). Little management disturbance has occurred in the drainage, other than lake shore development. Habitat conditions are near pristine, although, sediment is naturally high from granitic parent materials. The USFS also monitors stream temperatures in reaches above and below Pettit Lake. The agency has determined that stream temperatures below the lake are likely natural and a result of heating of the lake surface (NMFS 2015).

Pettit Lake Creek has not been listed for water quality violations due to the presence of toxic contaminants. However, this stream is listed on IDEQ's 303 (d) list as a Category 3 water body for which

there is insufficient data on water quality, including toxics, to determine if beneficial uses are being met (IDEQ 2014).

USFS Watershed & Aquatic Recovery Strategy (WARS)

The Watershed and Aquatic Recovery Strategy (WARS) was founded on elements of the Forest Service's Aquatic Conservation Strategy[4] (ACS) and provides management direction to the SNRA for re-establishment of subwatershed function, processes, and structures, including historical ranges of conditions. The intent of this direction is to recognize the variability of natural systems while (1) securing existing habitats that support the strongest populations of wide-ranging aquatic species and the highest native diversity and geomorphic and water quality integrities; (2) extending favorable conditions into adjacent subwatersheds to create a larger and more contiguous network of suitable and productive habitats; and (3) restoring soil-hydrologic processes to ensure favorable water quality conditions for aquatic, riparian, and municipal beneficial uses that would contribute to the delisting of fish species and water quality limited water bodies. For the Sawtooth National Forest, this direction is further focused by LRMP Standard and Guidelines TEOB03, "*Identify and reduce road-related effects on TEPC[5] species and their habitats using the Watershed and Aquatic Recovery Strategy and other appropriate methodologies";* and SWOB14, "*Prioritize improvements to existing culverts, bridges, and stream crossings identified for fish passage and associated bedload and debris problems, based on the Watershed Aquatic Recovery Strategy (WARS) Map, fine-scale analyses and/or project-level priorities".*

In the WARS assessments, Pettit Lake Creek is recognized as being in very good geomorphic and water quality condition and functioning appropriately; and in the Land and Resource Management Plan is under a Management Prescription Category (MPC) designated for passive restoration and maintenance of aquatic, terrestrial, and hydrologic resources (MPC 3.1). Nonetheless, its importance for the recovery of ESA-listed sockeye salmon identifies it as a "high priority subwatershed" under the ACS, requiring high levels of protection and maintenance of its existing functioning condition.

3.5.2 Environmental Effects on Water

Proposed Action

The construction activities would create short-term pulses of sedimentation during construction. Heavy equipment be operating on the stream banks and in the margins of Pettit Lake Creek in preparation for its dewatering. Once dewatered, heavy equipment would be operating in the streambed where fines, sands, and gravels would be disturbed and ultimately mobilized into the water column when flows are restored.

Re-watering the disturbed streambed would introduce sediment into the creek, likely for a couple of hours until the stream moves and deposits the fines, gravels, and cobbles as its flow dictates. Turbidity is anticipated to be high during this short period but anticipated to return to baseline within 200 to 400 feet of the source, given the higher concentration of sands and gravels over fines in this creek. Water conditions would be expected to return to pre-construction quality conditions within hours or days.

[4] The ACS is a Forest Service land-management strategy using a system of riparian reserves, priority watersheds, watershed analyses, restoration actions, and "Standards and Guidelines" to maintain and restore aquatic and riparian features and processes at the watershed level. These elements have been incorporated into the Sawtooth National Forest's Land and Resource Management Plans (LRMPs) and used to guide project planning and design to meet aquatic restoration objectives.
[5] TEPC is an acronym for Threatened, Endangered, Proposed, and Candidate Species under the ESA.

The effect of the Proposed Action on water quality would be high for a limited length of stream for a short period of time following construction. There would be a low to no effect for the long-term operation of the weir.

There would be no consumptive use of water by the Proposed Action so there would be no effect on water quantity.

Consistency with the Watershed and Aquatic Recovery Strategy

The project is consistent with Forest Plan direction for consistency with WARS and the ACS in that it is designed specifically for the restoration of ESA-listed sockeye salmon, and maintains or improves the functioning condition of aquatic habitats, and maintains fish passage throughout the year thereby providing for genetic exchange for ESA-listed salmonids. Regarding Forest Plan Standard and Guideline TEOB03, the Proposed Action maintains existing open road densities; and for Standard and Guideline SWOB14, the new structure is designed to resolve the known riparian-degrading conditions at the washout around the existing weir, and provides for the stream's effective movement of bedload and debris.

Though construction activities would degrade habitat conditions in the short term, the long term result would be the reduction of sediment input from the effects of the existing weir, and restoration of the construction site to a fully functional stream bed, stream banks and riparian vegetative conditions upstream and downstream of the weir.

No Action

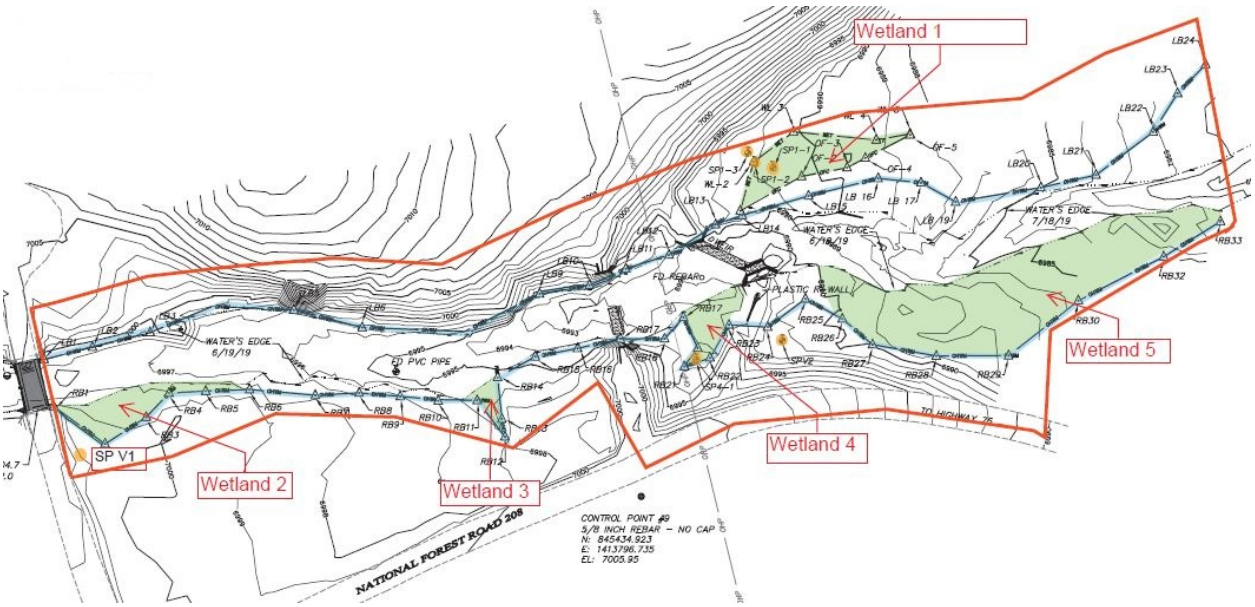
The No Action Alternative would have no construction activities and have no use of heavy equipment along the banks or in the bed of Pettit Lake Creek. Back-flooding and overtopping from current weir conditions would continue to have minor effects to water quality conditions during high flows.

3.6 Wetlands and Floodplains

3.6.1 Affected Environment

Five wetlands were identified from wetland surveys conducted on June 19, 2019 (HDR 2019). Wetland #4 is located immediately upstream of the weir site, with wetlands #1 and #5 located immediately downstream (Figure 25).

Figure 25 Five identified wetlands near weir site (from HDR 2019)



Wetland #4 is an annually inundated palustrine emergent wetland within the ordinary high-water mark of the creek, located in the flooded fringe of Pettit Lake Creek, south of the un-vegetated mainstem channel. It is located near landward of the right bank abutment of the existing weir, where springtime runoff flows around the weir.

Wetland #1 is a palustrine scrub/shrub wetland dominated by rose meadowsweet (*Spiraea splendens*) and scattered lodgepole pine trees and saplings, with an understory of Virginia strawberry (*Fragaria virginiana*), lance-leaf springbeauty (*Claytonia lanceolata*), and starry false Solomon's-seal (*Maianthemum stellatum*). It is located on a slope, downslope of Pettit Lake Creek, and appears to be fed by subsurface flows from Pettit Lake Creek.

Wetland #5 is a palustrine forested wetland located in the flooded fringe of Pettit Lake Creek, south of the un-vegetated mainstem channel. The wetland boundary is co-located with the OHWM of Pettit Lake Creek. Dominant vegetation includes lodgepole pine, Lemmon's willow, lakeshore sedge, four-line honeysuckle, and Lyall's angelica (*Angelica arguta*). The wetland is fed by overbank flooding.

The entire construction site is within the narrow floodplain of Pettit Lake Creek. The presence of the historical IDFG weir abutments and berms upstream, and the current weir's abutments and berms have altered this creek's floodplain function. Flows are artificially channeled between the abutments of both weir sites, preventing Pettit Lake Creek from flooding across its narrow floodplain. Its flow rate and erosive forces are thereby increased throughout this reach, and its sediment deposition potential is greatly reduced.

3.6.2 Environmental Effects on Wetlands and Floodplains

3.6.2.1 Proposed Action

Wetlands #4 and #5 would be impacted by the project's construction. Wetlands #1, #2, and #3 would not be affected.

Wetland #4 and #5 would be directly affected by construction of the stream bypass and the right bank weir abutment. Wetland areas of impact here can be expected to be entirely destroyed by construction

activities temporarily yet restored to pre-project elevations and planted with aquatic and riparian vegetation sufficient for wetland function and condition once hydrologic function resumes in the first year following construction.

Construction of the new weir would not alter the existing limited functional condition of Pettit Lake Creek's floodplain. The remnant berms and abutments upstream, and the berms and abutments resulting from this construction proposal, would maintain the limitations on this creek's use of its floodplain in this reach. Floodplain function would be neither improved nor further limited by this action.

The overall short-term temporary effect on the two wetlands in the construction area would be high, but the long-term effect on wetlands and floodplains would be low, with an overall moderate impact on wetlands and floodplains.

3.6.2.2 No Action

The No Action Alternative would have no construction activities and no need for temporary bypass construction. This Alternative would continue to affect Wetland #4 and #5, by allowing excess stream flow to flush sediment into these areas.

3.7 Fish and Aquatic Species

3.7.1 Affected Environment

3.7.1.1 Sockeye Salmon

Pettit Lake Creek historically supported spawning and rearing Chinook salmon and steelhead. Neither species spawns there today, due to the barrier effect of dams on the Salmon River since the early 1920's. Today, the collection and water supply weirs serving the Sawtooth Fish Hatchery on the Salmon River near Redfish Lake are the only remaining physical barriers. Though Chinook and steelhead and Steelhead are routinely passed above the collection weir, the water supply weir may still prevent many of these fish from spawning in the Upper Salmon River tributaries further upstream, including Pettit Lake Creek. Steelhead are no longer present at any life stage in Pettit Lake Creek, but juvenile Chinook have been captured in the Pettit Lake Creek weir in the spring, indicating some limited juvenile rearing from adult spawning in Alturas Creek downstream.

Sockeye salmon once returned in large numbers to five nursery lakes in central Idaho's Sawtooth Valley, but experienced a precipitous decline in abundance due to commercial overharvest during the 1800s (Evermann 1896, Fryer 1995, Selbie et al. 2007). The following century, multiple hydropower projects and migration barriers were constructed within the Columbia River Basin, including the former Sunbeam Dam (1911-1932) located on the upper Salmon River, which blocked upstream migration. Additionally, non-native stocking and eradication efforts also occurred, further driving the decline of Snake River Sockeye Salmon and contributing to the extirpation of several spawning populations (Selbie et al. 2007, Kline and Flagg 2014, NOAA 2015).

Pettit Lake historically supported an anadromous sockeye salmon population, and Pettit Lake Creek was the migratory corridor for spawning adults in the late summer and for migrating juveniles downstream in the spring. In the late 1950's, however, the Idaho Department of Fish and Game began managing Pettit Lake as a trout fishery. The lake was chemically treated to remove other species, including

Sockeye Salmon, and an outlet barrier[6] was constructed in 1960 to prevent all upstream fish migration from 1960 until 1996 when the barrier was removed by the SBT to allow for passage for anadromous Snake River Sockeye Salmon into the lake. The weir at Sawtooth Fish Hatchery, however, prevents anadromous returns of Sockeye Salmon to Pettit Lake today.

While adult returns have been limited, in 2019, three Pettit Lake Sockeye Salmon adults returned to Sawtooth Fish Hatchery and were transported to Pettit Lake. Since 2014, Idaho Department of Fish and Game has released approximately 100 captive-reared adults into Pettit Lake. IDFG also screens natural-origin fish trapped at the Sawtooth Fish Hatchery weir to determine if their origin was Pettit or Alturas Lake, and release them into the appropriate lake upon genetic confirmation. With continued production efforts, the number of returning adults is expected to increase exponentially. In years with many returns, these returning adults would be passed above Sawtooth Fish Hatchery and be allowed to naturally migrate to Pettit Lake where they would be captured in the proposed adult trap, processed, and released above. SBT would evaluate smolt production from continued releases of adult Sockeye Salmon and natural production from adult returns to the lake. This would inform future actions for Pettit Lake and help determine whether the program would continue to release captive adults at current levels (or increase release numbers) and further management decisions concerning Snake River Sockeye Salmon (NMFS 2019). Spawning in Pettit Lake by sockeye salmon adults produce the juveniles that the SBT monitors at the weir on Pettit Lake Creek. As natural production increases with captive releases and natural adult, juvenile out-migrants would be closely monitored to evaluate reproductive success and successful anadromous returns to the lake. Juvenile trapping would be conducted in the spring after which the trap would be removed and then later replaced in time for adult migrations in the fall in years where adult returns are expected. This continued monitoring of adult returns and juvenile migrants in Pettit Lake is necessary to assess production and investigate and implement activities necessary to reestablish and increase *sockeye* productivity in the lake.

3.7.1.2 Bull Trout

Bull trout (*Salvelinus confluentus*) occupy the Upper Salmon Core Area, as defined in the USFWS bull trout recovery plan (USFWS 2015). Bull trout use is well documented in this Core Area, using the upper mainstem of the Salmon River and associated tributaries for spawning, rearing, foraging, thermal refugia, migration and overwintering habitat (Engh 2018, Schoby 2007). The entire action area has been designated as Critical Habitat (foraging, migration, and overwintering) from its confluence with Alturas Lake Creek upstream approximately 1.5 miles to, and including, Pettit Lake (USFWS 2015).

Bull trout use patterns in Pettit Lake and Pettit Lake Creek, however, are not clearly understood, since evidence of their use of this system comes from only three sources indirectly:

1. SBT routinely trap a few (5-20) bull trout (less than 12 inches in length) each spring while trapping out-migrating sockeye salmon juveniles. Fourteen were captured and released in 2018 with no mortalities; two were captured and released downstream in 2019 (Pers. Comm. Kurt Tardy).
2. No adult bull trout were encountered in summer or early fall while sampling for fish use in Pettit Lake Creek in the past (Pers. Comm. Greg Schoby).
3. Bull trout have been sampled from Pettit Lake in February, during monitoring of fish diets associated with sockeye salmon habitat and limnological research (Taki et al. 1999 and 2006).

[6] This weir's remaining sill and abutments are visible upstream of the current weir

From this indirect information, it is possible that adult bull trout migrate up the Salmon River, Alturas Lake Creek, and then Pettit Lake Creek in early summer for spawning in Pettit Lake Creek above the lake, then back downstream in the fall for overwintering in the Salmon River, as is true for some bull trout spawning above Redfish Lake. Some bull trout apparently overwinter in Pettit Lake, as in Redfish Lake, then migrate down Pettit Lake Creek during high spring flows to spend the spring and early summer months feeding in the Upper Salmon River.

3.7.1.3 Aquatic invasive species

Invasive species are often harmful non-native plants, animals, and pathogens that could negatively impact native fish populations. To date, no zebra and quagga mussels, Eurasian water Milfoil, or Chytrid fungus have been detected in the SNRA. New Zealand mud snails have only been found in a small pond on private property near Squaw Creek. Whirling disease was detected in the headwaters of Alturas Lake Creek (NMFS 2019).

The greatest risk of aquatic invasive species infestations to Pettit Lake Creek comes from boats launching in Pettit Lake and public fishing.

3.7.2 Environmental Effects on Fish and Other Aquatic Species

Effects on fish and aquatic organisms from the Proposed Action will occur during heavy equipment operation, the dewatering of Pettit Lake Creek, and annual operational activities. The project is designed so that these effects are short-term. Construction will be completed, flows reintroduced, and restoration actions taken prior to winter and the next season of high flows. The effects discussed in this section presume the proper and effective application of the Design Criteria listed in Section 2.1.6, which were developed to minimize the effects of the Proposed Action.

Heavy Equipment Operation

Heavy equipment operation will result in the loss of vegetation and soil compaction within the .5-acre construction area. This will cause a short-term reduction of vegetation growth, though very little riparian shade and cover exist now from actions of past barrier and weir construction. Restoration plantings will mitigate any long-term losses that undisturbed vegetation might have provided in terms of shade, cover, or food sources for aquatic species.

When heavy equipment is operating there is potential for fluid spill and small leaks. Only non-toxic hydraulic fluids are allowed so that drips or spills will not measurably affect aquatic organisms. If riparian or in-stream spills do occur, then short-term, localized adverse effects to individuals are likely, but no long-term adverse effects to habitat or organisms are expected. The application of Design Criteria will limit the duration and extent of any spills and will ensure preventative and control measures are adhered to.

Approximately 400 square feet of wetland will be impacted by heavy equipment operation. Impacts will occur within the dewatered reach so there would be no direct effect to fish. There will be a temporary loss of habitat for fish forage species (invertebrates) until vegetation recovers.

Excavator work in the dewatered streambed will displace and compact sediment and soils, impacting approximately 3,000 square feet. All aquatic life in this portion of the streambed will be destroyed. High spring flows will be necessary to restore the streambed to the desired condition. Aquatic life would likely be fully restored within months of the following year spring flow. There are no spawning gravels present in the construction area so there will be no effect on spawning activity of ESA-listed fish species.

Dewatering of Pettit Lake Creek

Approximately 3,500 square feet of stream bed will be dewatered for a five-week period. During this time, there will be temporary loss of aquatic habitat and fish forage species. Full recovery of aquatic habitat and fish forage species within the dewatered stream reach is expected by the following year. Fish in the dewatered reach will need to be handled and relocated. Two bypass pipes will be utilized during this period. One pipe is corrugated to provide downstream fish passage, the other is smooth to accommodate flows. Riparian and upland vegetation will need to be cleared to place the two bypass pipes resulting in loss of stream cover. The impact on water temperature from changes in shading will be insignificant.

Short-term turbidity impacts are highly likely. Design Criteria will minimize impacts and effects of turbidity and associated water temperature increase. Turbidity concentration will be high initially but is expected to clear within 2-4 hours. This initial pulse will lead to temporary stress on fish and plants downstream upon re-watering. The degree of turbidity and associated stress to organisms is not anticipated to exceed what they are accustomed to naturally.

Human Presence and Annual Operational Activities

During construction there will be visible human movement, shadows, and noise within the immediate construction area. This may result in short-term disturbance and displacement of fish, but the overall effect is insignificant. During operation and maintenance of the new weir, there will also be an insignificant amount of human disturbance to fish and other aquatic species. There will typically be two to three people working on the weir at a time. Visible human movement, shadows, and noise may displace fish to areas shielded from sight and sound of workers. There will be limited motorized activity, so sounds level will be low.

The effects on fish and aquatic organisms from continued operation of the new weir is expected to be low due to the design and operation timeframe. During juvenile trapping, the new weir is not designed for 100% capture efficiency like the current weir (Table 2). The new weir would only subsample juvenile migration and uses mark-recapture techniques to estimate abundance. Furthermore, the new trap design would be targeted to capture *sockeye* juveniles so larger species would be able to pass freely around the trap. After juvenile trapping is complete, the trap would be removed and would allow passage of all species. The adult trap would be installed only when adult returns to Pettit Lake are expected. For adult trapping a passage barrier would be used to block movement and to direct adult Sockeye Salmon to the trapping box on the left bank. Smaller species would maintain free movement through the weir gates. After adult migration and spawning is complete, the trap would be removed to allow open passage again. The blockage to movement is temporary and is not expected to have a large effect on non-target species. Juvenile trapping would allow passage of larger species and adult trapping would be able to occupy a short and precise timeframe due to expected Sockeye Salmon escapement and timing from the Sawtooth Fish Hatchery weir.

Table 2 Fish passage impacts of existing and new weir operations.

Fish passage at existing and new Pettit Lake Creek weir				
Fish life stage	**Juvenile trapping (mid-April through May)**		**Adult trapping (mid-August through early October)[1]**	
	Existing weir	**New weir**	**Existing weir**	**New weir**
Juvenile	Complete barrier; Non-volitional downstream passage only. All juveniles trapped and manually released downstream after data collection. No upstream passage capability.	No barrier; Free volitional passage up- and downstream; juvenile trap captures only 25-50% fish - not designed for 100% capture; all trapped fish manually released upstream after data collection for capture efficiency calculation; recaptures immediately released downstream	No adult trapping actions at existing weir; No instream barrier in place; free volitional movement up and downstream for juveniles and adults	No barrier; free volitional movement up- and downstream. Picket spacing for adult trapping allows for juvenile passage.
Adult	Complete barrier to both up- and downstream passage.	No barrier; free volitional passage up- and downstream.		Non-volitional upstream passage provided. Adults moving upstream would be trapped and manually released upstream[2]. Adults moving downstream would be blocked - no volitional passage of weir would be available.

[1] Adult trapping is anticipated for the future, but is dependent on success of ongoing captive breeding program. The year it starts is unknown.
[2] Adult sockeye salmon would not be released upstream but removed for captive breeding. All other species released upstream.

No Action

Under the No Action Alternative, the current weir creates a passage barrier during the juvenile trapping season due to the 100% capture design. Furthermore, there are issues trapping out-migrating juveniles including: 1.) juveniles would overtop the weir; 2.) juveniles become impounded in backwater flooding; and, 3.) juveniles become impinged on the weir face. All three have and would continue to result in significantly elevated mortality rates.

3.8 Wildlife

3.8.1 Affected Environment

3.8.1.1 Habitat types and conditions

3.8.1.2 Species present

The project would impact habitats within and beside the aquatic and riparian habitats of Pettit Lake Creek, and the upland lodgepole forest and sagebrush habitats around it. These areas provide habitat for the smaller, more common and ubiquitous bird and mammal species of the northern Rockies and though suitable to support deer, elk, moose, and wolves, are too close to roads and human activity centers for these species to be more than occasional pass-through visitors.

Forest habitats near and around the project area are too fragmented for Canada lynx; of the wrong type (open lodgepole versus dense mixed higher-elevation conifer forest) for fisher; and the project area is too low in elevation with too much human activity for concentrated use by wolverine. Canada lynx and wolverine, however, with their very large home ranges and tendencies to disperse long distances, could pass through this area in winter when human activity is at its lowest.

ESA and Sensitive species

One ESA-listed "threatened" species, Canada lynx (*Lynx canadensis*), and one "proposed threatened" species, North American wolverine (*Gulo luscus*) have the potential to pass by the project site.

No lynx populations have been documented recently within the Sawtooth NRA, and the Action Area does not contain predicted lynx habitat (though predicted habitat is nearby). At most, lynx may disperse through the action area while moving between blocks of habitat, but this is believed to be unlikely given the high degree of human presence in the summer months. Such passage would be more likely in winter when snow cover precludes most human activity.

The same is true for wolverine, though wolverine have been sighted in the nearby Sawtooth Wilderness above Pettit Lake. The project area does not provide suitable habitat for either reproduction or foraging, but this species' home range is large, so the site may be within at least one animal's home range. As with lynx, however, wolverine's use of this area is further discouraged by the high degree of human presence and activity around Pettit Lake.

No sensitive bird species are known to nest in or near the project site.

3.8.2 Environmental Effects on Wildlife

The effects of the Proposed Action on wildlife would be low. The work area is concentrated to a small area that does not currently house a large concentration of wildlife, and the construction period is outside the nesting season for migratory birds in this area. The continued operation of the new weir is not expected to significantly influence wildlife in the area as staff would only access the facility once a day and use only the disturbed areas for operations.

There would be no effect to lynx or wolverine since their preferred habitat features are not found in the project area (and therefore not impacted), and the animals themselves are likely not present because of high levels of human activity. These animals may wander through in winter, but this project is not active then, and the new structure would not affect such movement.

No Action

Under the No Action Alternative, effects on wildlife is considered low. However, during juvenile trapping, wildlife disturbance would be higher than under the proposed action due to necessary continued visits to the weir during the night and day to prevent overtopping.

3.9 Land Use, Recreation, and Transportation

3.9.1 Affected Environment

3.9.1.1 Public and Private land use overview/General description

The project site is on National Forest System lands within the SNRA, with the closest private land being approximately one mile to the east, across Alturas Creek, in the bottomlands of the Sawtooth Valley.

Most of the lands around Pettit Lake Creek are under federal management (SNRA and Sawtooth National Forest) with private dryland ranches in the Sawtooth Valley approximately one mile to the east, and irrigated lands (pasture and alfalfa hay) approximately four miles to the southeast, in the upper Sawtooth Valley. Much of the Sawtooth Valley is privately owned, but the Forest Service has acquired conservation easements on most of these properties to ensure open space, prevent incompatible development, and maintain public access to national forest lands.

Land use in the upper Salmon River is primarily ranching on the private lands, with tourism and recreation on the public lands. Consumptive land uses, such as timber management, grazing, and mining, on national forest lands here is limited, since the focus of management of the SNRA is on outdoor activities such as camping, hiking, sightseeing, fishing, and hunting, with lake-oriented recreation activities (canoeing, kayaking, swimming, and fishing) enjoyed in nearby Pettit Lake.

Other than lakeshore developments (recreation and cabin lots) around Pettit Lake that occupy nearly 50-percent of the shoreline, there is little land use disturbance in the watershed. However, it is possible that historical sockeye salmon spawning habitats are adjacent to these lakeside developments. Condition assessments by the USFS in 2006 showed that the shoreline in these areas had more trampled banks and less vegetation or woody debris (NMFS 2019).

Land use in the Sawtooth Valley is predominantly cattle ranching and recreation. The private lands, with ranches and scattered residences, are primarily used as pasture. Alturas Lake Creek is the only outlet stream from the lakes that crosses these private agricultural lands before entering the Salmon River. The town of Stanley had a population of 63 in the 2010 census. More than 1 million people per year visit the Sawtooth National Recreation Area, mostly in the summer.

The SNRA encompasses roughly 3,150 km^2 (778,000 acres) and is heavily used in the summer for fishing, boating, hiking, picnicking, camping, and livestock grazing. In the winter, the area is used for cross-country skiing, snowmobiling, and other outdoor activities. The SNRA contains five major road-accessible lakes (Alturas, Pettit, Yellowbelly, Redfish, and Stanley) and numerous other lakes and streams. The SNRA is managed by the U.S. Forest Service.

The lakes of the SNRA have numerous recreational facilities such as campgrounds and picnic areas. Camping, fishing, scuba diving, hiking, sightseeing, swimming, boating, jet skiing, and other day-use activities are common on each of the five major Sawtooth Valley lakes. The SBT and Nez Perce Tribes have hunting and fishing rights in the Sawtooth National Forest that have been reserved by treaty (NMFS 2015).

There is little land use disturbance in the Pettit Lake watershed, other than lakeshore developments. Developed recreation sites or cabin lots occupy approximately two miles of the south end of Pettit Lake – nearly 50-percent of the shoreline. Sockeye Salmon shoal spawning habitats are adjacent to these lakeside developments (USFS 2011). There are also several recreation developments (Pettit Lake Campground, Day Use area, and boat launch) near the lake's outlet. Condition assessments by the USFS, in 2006, showed that shoreline near developments had more trampled banks and less vegetation and downed woody debris (*NMFS 2015*).

3.9.1.2 Land and Resource Management Plan direction

The proposed action is consistent with the 2012 Sawtooth National Forest Plan (Forest Plan) as amended. Consistency with Forest Plan direction is documented in the Forest Plan Consistency checklist, on file in the Project Record. The project was designed in conformance with Forest Plan standards and incorporates appropriate Forest Plan guidelines for special use authorizations. Specifically, the project was designed to be in conformance with the management direction for the

Upper Salmon River Valley, Management Area 2, Forest Plan pages III-107 through III-132. Within Management Area 2, the project falls under a specific management prescription of "Active Restoration and Maintenance of Aquatic, Terrestrial, and Hydrologic Resources". The project directly supports this prescription.

The projects location along Pettit Lake Creek is within an eligible wild and scenic river segment, with a scenic classification, and fish are listed as the outstanding remarkable value. The projects design would help ensure that the eligible status of this river reach is being maintained. In addition, the weir's continued operation helps support fish research and recovery efforts.

No Action

Under the No Action Alternative, the Forest Plan direction would continue to be met and the project would continue to support the classification of Pettit Lake Creek as an eligible wild and scenic river segment.

3.9.2 Environmental Effects on Land Use, Recreation, and Transportation

The effect of this action on recreational activities would be low. During the work window, road access would only be restricted temporarily during the day, allowing for continued recreational access. The work location and staging area do not occupy high use areas for recreational activity. Continued operation of the Proposed Action would allow a parking area for staff members that would not be on the road and operations would only require one trap check per day. When the trap is not being used during juvenile or adult trapping, it would be removed.

No Action

Under the No Action Alternative, continued monitoring of the weir during juvenile trapping would result in regular on-road parking and operation of the trap regularly throughout the day and night. Current noise levels and disturbance would be unchanged with the no action alternative.

3.10 Cultural and Historical Resources

3.10.1 Affected Environment

The first people to use the lands that are now the Sawtooth National Forest occupied this area between 8,000–7,000 BC. More recently (after 1,700 AD) the Shoshone—or Sheepeater people—lived in small bands on the northern end of the forest, harvesting roots and tubers, fish and game, and timber and rocks for tools.

The SBT and Nez Perce Tribes have hunting and fishing rights in the Sawtooth National Forest that have been reserved by treaty.

No cultural resources were identified during the archeological survey for this project.

3.10.2 Environmental Effects on Cultural and Historical Resources

There would be no effect on known cultural resources from this action. In the event an archeological site is found, implementation would cease in that area in order to record and assess the impact. This would be a coordinated effort between the SBT and the NRA.

The No Action Alternative would not disturb cultural or historical resources, as work would not be performed.

3.11 Public Health and Safety

3.11.1 Affected Environment

Under the Proposed Action, safety of personnel is a top priority and all design features enhance safety of continued operation. The new design provides parking off the major road, access to the weir off the major road, and significant safety measures are taken for operation on the actual trap as well. Gates would be utilized to prevent access to the weir itself for safety of the public.

3.11.2 Environmental Effects on Public Health and Safety

The Proposed Action would not change environmental effects on public health and safety.

The No Action Alternative would not change environmental effects on public health and safety.

3.12 Visual Resources

3.12.1 Affected Environment

Because this is a National Recreation Area, it is understood that the general public has a high sensitivity to Forest Management activities in this area. People use the project area to recreate and to access other recreational opportunities. Due to the very high level of recreation use the Pettit Lake area receives, users would likely display a high-level of sensitivity to the landscape character, equating to a Sensitivity Level of "1" or highest (out of 3) as inventoried, mapped, and adopted in the Sawtooth Forest Plan.

3.12.2 Environmental Effects on Visual Resources

The Proposed Action makes no changes to any landforms, or land uses, thus there would be no effect to the visual character of the area. The Proposed Action does include a weir that would be larger than the current weir being used for proper functioning, thus additional screening would be used to improve the visual character of the area. Following construction, the surrounding area would be rehabilitated, and the removal of the rough fish barrier abutments would further enhance the visual character of the area.

No Action

The No Action Alternative would keep the rough fish barrier abutments intact and current erosion problems would continue from backwater flooding. The existing weir itself is smaller than the new design and thus less visible from the road under current conditions but results in negative effects to the surrounding environment.

3.13 Cumulative Effects

"Cumulative effects" are defined in CEQ's NEPA regulations as the "impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions…" (40 CFR 1508.7). The actions of state and private parties discussed here are not limited to those within the Action Area. Past, present, or reasonably foreseeable future actions outside this Action Area could have effects that extend into the area when combined with the effects of this action.

The Action Area is entirely on NFS lands, though private lands are nearby (Figure 26). Activities occurring on private lands include livestock grazing and removal of dead and dying trees from Mountain Pine Beetle infestation, which given their distance and location across Alturas Creek are not likely to

indirectly affect the Acton Area. However, private land activity also includes camping, hiking, hunting, snowmobiling, cross country skiing, mountain biking, fishing, river rafting, motor vehicle and OHV use, which all likely extend across property boundaries onto NFS lands and the Action Area.

Figure 26 Private lands (light blue) near the action area (orange outline)

Recent past activities near the Action Area and its surrounding watershed include approximately 63 acres of salvage harvest of Lodgepole Pine around developments (campground, trailhead, recreation residences) completed in 2008.

Ongoing and foreseeable future activities include:

- SNRA plans to implement a fuels reduction and forest health project in the Pettit Lake area within the next 2-3 years, including thinning along Pettit Lake Road and harvesting approximately 38 acres by patch cuts on the moraine south of Pettit Lake.
- Ongoing operation, maintenance, and improvements associated with use and property management at private recreational residences around Pettit Lake; and actions on the nearest private lands, including building, road, and trail construction and maintenance.
- Summer recreation activities by private parties such as camping, motor vehicle and OHV use, horseback riding, water sports, fishing, hunting, biking and hiking. Winter recreation activities include snowmobiling and cross-country skiing.
- Operation and maintenance of the Pettit Lake Creek weir by the Shoshone Bannock Tribe.

All the actions listed have been ongoing for decades and are limited in scope and scale. These actions coupled with the direct and indirect effects of the proposed Pettit Lake Creek weir result in negligible

cumulative effects to the Action Area. The area also benefits from an expanse of wilderness and roadless area to the West which contributes to the resiliency of the system and pristine nature of Pettit Lake.

Chapter 4. Coordination, Consultation, and Compliance

4.1 Agency Coordination and Public Involvement

The Notice of Proposed Action was made available for public comment on February 19, 2020. A legal notice initiating the formal comment period was published in the Challis Messenger Newspaper on February 19, 2020. Letters describing the opportunity to comment were mailed to interested members of the public. The SNRA also contacted elected officials at the county and federal levels.

The official comment period ended on March 20, 2020. Responses were received from four parties: the Idaho Conservation League, David Lee, Jon Marvel, and Mark Moulton. These responses related to aquatics, long-term monitoring and oversight, fisheries, ESA consultation, equipment staging, parking, visuals, removal of improvements when use of the weir ceases, and a weir modification action alternative.

Concerns related to long-term monitoring/oversight and the SBT's special use permit (SUP) will be addressed by adding terms and conditions to the permit for decommissioning and removal of the weir, per special use permit auth ID# NRA601802, following its use. To address concerns about aquatics, a condition to notify IDFG and the SNRA of any aquatic invasive species observed will also added to the SUP. All other concerns were addressed within the Environmental Assessment.

All comments received are on file in the Project Record along with a spreadsheet demonstrating consideration of those comments.

4.2 Environmental Review and Coordination

In conducting the action, the SBT, SNRA, and BPA would comply with applicable Federal laws, regulations, and executive orders. The following sections describe how the Proposed Action follows the various environmental laws and other relevant Federal executive orders.

4.2.1 National Environmental Policy Act

This EA was prepared pursuant to regulations implementing NEPA (42 U.S.C. 4321 *et seq.*), which requires federal agencies to assess the impacts that their actions may have on the environment. NEPA requires preparation of an EIS for major federal actions significantly affecting the quality of the human environment. The SNRA and BPA have prepared this EA pursuant to regulations implementing NEPA, which requires federal agencies to assess, consider, and disclose the impacts that their actions may have on the environment before major federal actions are taken.

In this EA, the SNRA and BPA evaluated two alternatives to meet the purpose and need as described in Chapter 2: Proposed Action and the No Action Alternative. The Proposed Action would construct a new weir/fish trap at the site of an existing weir, and operate it under a 20-year SNRA special use permit.

4.2.2 Endangered Species Act

The ESA and its amendments (16 U.S.C. 1531 *et seq.*) require federal agencies to ensure that the actions they authorize, fund, and carry out do not jeopardize the continued existence of any endangered or

threatened species or result in the destruction or adverse modification of critical habitat. The effects on species listed under the ESA are discussed in Chapter 3 of this EA, specifically in Sections 3.3, "*Vegetation*"; 3.7, "*Fish and Aquatic Species*"; and 3.8 "*Wildlife*". ESA-listed salmonids are known to use the project area and would be affected by the Proposed Action. ESA-candidate and listed wildlife species occupy habitats near the Proposed Action and have the potential to move through or by the area.

The Biological Assessment/Evaluation found that the action is likely to adversely affect Snake River spring Chinook salmon and designated critical habitat. Additionally, bull trout individuals are likely to be adversely affected during dewatering of the channel. This impact to listed fish is temporary and localized, occurring only during construction. All construction activities will be guided by the relevant design criteria that have been developed to minimize adverse effects to these species.

Consultation with the Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration (NOAA) is currently ongoing. An Endangered Species Act Section 7(a)(2) Biological Assessment/Evaluation was submitted to FWS and NOAA on June 11, 2020. Any terms and conditions that come from consultation will be added to the decision.

4.2.3 Clean Water Act

Wetland and waterway management, regulation, and protection are addressed in several sections of the Clean Water Act, including Sections 401, 402, and 404. The Idaho Department of Environmental Quality administers the Clean Water Act in the State of Idaho and would review this project's permit application for compliance with Idaho's water quality standards and grant certification if the permit complies with these standards.

Clean Water Act Section 401

A federal permit to conduct an activity that causes discharges into navigable waters is issued only after the state of Idaho certifies that existing water quality standards would not be violated if the permit were issued. IDEQ has reviewed the Corps' Section 404 Nationwide Permit 33 ("*Temporary Constructions, Access, and Dewatering*") that would be required for the Proposed Action for compliance with Idaho water quality standards and granted 401 certification in 2017.

Clean Water Act Section 402

This section authorizes National Pollutant Discharge Elimination System (NPDES) permits for the discharge of pollutants, such as stormwater or hatchery effluent discharges. If applicable, the SBT would issue a Notice of Intent to obtain coverage under this general permit, and would prepare a Stormwater Pollution Prevention Plan to address stabilization practices, structural practices, stormwater management, and other controls.

Clean Water Act Section 404

Authorization from the US Army Corps of Engineers (Corps) is required in accordance with the provisions of Section 404 of the Clean Water Act when dredged or fill material is discharged into waters of the United States. The SBT would be acquiring this authorization from the Corps prior to implementation. The Corps' nationwide permit process (NWP 33, "*Temporary Constructions, Access, and Dewatering*") would be used for this action.

4.2.4 National Historic Preservation Act

The project area was surveyed in compliance with Section 106 of the National Historic Preservation Act, and consultation with The Idaho State Historic Preservation Office, the SBT, the Nez Perce Tribe, and the Shoshone Paiute Tribe was completed on 3/4/2020 with concurrence that no historic properties would be affected.

The SBT would follow established procedures for protecting archaeological and cultural resources, if encountered during construction. The SBT would avoid damaging cultural and historic resources and would comply with the National Historic Preservation Act of 1966 (16 U.S.C. 469) and other cultural resource preservation laws. If any cultural resources are discovered during project activities, a member of the Sawtooth National Forest Heritage staff would be immediately notified and all project work in the immediate vicinity shall cease until a member of the Heritage staff assesses the significance of the resource.

4.2.5 Public Law 92-400

The project is consistent with direction for management of the Sawtooth National Recreation Area. This project will not result in "substantial impairment" to any of key value defined in P.L. 92–400.

4.2.6 Comprehensive Environmental Response, Compensation, and Liability Act

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. 9601 *et seq*.), the SNRA and BPA have determined that the proposed project area is not on the Environmental Protection Agency's National Priority List.

4.2.7 Executive Order 12372. Intergovernmental Review

Coordination and consultation with affected Tribal, local and State governments, other Federal agencies, and local interested persons has been completed through the formal scoping process conducted for this EA.

4.2.8 Executive Order 13186. Responsibilities of Federal Agencies to Protect Migratory Birds.

This Executive Order directs departments and agencies to take certain actions to further implement the Migratory Bird Treaty Act. A provision of the Executive Order directs Federal agencies to consider the impacts of their activities, especially in reference to birds on the Fish and Wildlife Service's list of Birds of Conservation (Management) Concern. It also directs agencies to incorporate conservation recommendations and objectives in the North American Waterbird Conservation Plan and bird conservation plans developed by Partners in Flight into agency planning. The Proposed Action includes no ground-disturbing actions that would affect migratory birds. Construction would occur outside of migratory bird nesting season and in habitat that do not provide nesting resources for migratory birds. Thus, actions specified by this Executive Order are not influenced by the Proposed Action.

4.2.9 Executive Order 13175. Consultation and Coordination with Indian Tribal Governments

Consultation between the Sawtooth NRA and the Shoshone-Bannock Tribes occurred on December 5, 2019, December 19, 2019, and March 11, 2020. In addition to consultation with the Shoshone-Bannock Tribes of Fort Hall's own Tribal Government, SBT has consulted with the Nez Perce Tribe and the Shoshone-Paiute Tribes of the Duck Valley Indian Reservation.

Sawtooth NRA staff also presented the project to the Shoshone-Paiute Tribes, at a Wings and Roots meeting, on December 4, 2019. The Shoshone-Paiute Tribes support the project.

4.2.10 Other Federal Executive Orders

In implementing the Proposed Action, the SBT would comply with the following Executive Orders: Protection of Historical, Archaeological, and Scientific Properties (Executive Order 11593) and Departmental Policy on Environmental Justice (Executive Order 3127).

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