Chapter 1: Updated Summary and Project Description

1.1 Introduction

The Bonneville Power Administration (BPA) has a responsibility to protect, mitigate, and enhance fish and wildlife affected by the Federal Columbia River Power System (Northwest Power Act, 16 U.S.C. § 839 et seq). One species covered by that mandate is the Snake River spring/summer chinook salmon listed as threatened under the Endangered Species Act (ESA). BPA is now evaluating whether to provide funding for final design, property acquisition, construction, modification, operation, and maintenance of facilities to better implement existing, pre-approved programs of hatchery fish production for Snake River spring/summer chinook native to the Grande Ronde and Imnaha Rivers of Northeast Oregon. Before taking action on this matter, BPA must comply with the National Environmental Policy Act (NEPA) by preparing an Environmental Impact Statement (EIS). BPA, therefore, has prepared an EIS to consider alternatives and the environmental consequences of a Proposed Action (Proposed Action) to modify and modernize existing hatchery facilities and to construct auxiliary hatchery facilities where needed to aid in conservation and recovery of this species in Northeast Oregon.[1]

This Final EIS is an abbreviated document that updates some information that was presented in the Draft EIS (DOE/EIS-340 2003) where warranted, makes factual corrections of minor errors or oversights, and responds to substantive comments received on the Draft EIS. This Final EIS is intended to complement the Draft EIS, and together, these documents combine to constitute "the EIS" or "this EIS". This EIS evaluates and presents the environmental effects of the Proposed Action and a No Action Alternative.

Consideration of issues or elements of the hatchery production program is outside the scope of this EIS. Therefore, this EIS does not consider or evaluate changes to pre-established programmatic goals, costs versus benefits of the proposed facilities compared to other recovery methods, production levels, monitoring and evaluation requirements, genetics, ecological interactions, operational means of achieving programmatic goals, or hatchery phase-out or removal. While this EIS addresses cumulative effects of construction and operation of the proposed facilities, it does not address programmatic issues associated with spring/summer chinook recovery programs, hatcheries in general, or funding priorities for different recovery methods.

The abbreviated Final EIS consists of three chapters:

- **Chapter 1: Updated Summary and Project Description.** Chapter 1 provides an updated project overview and repeats the purpose and need for the Proposed Action (NEPA requirement); identifies the key decision-makers and responsible officials; summarizes public involvement, consultation, and coordination; provides an overview of changes since the Draft EIS; describes the Proposed Action, No Action Alternative, and alternatives eliminated from detailed study; summarizes environmental consequences and mitigation measures; and summarizes cumulative impacts.

- **Chapter 2: Revisions to Draft EIS.** Rather than reprinting the entire Draft EIS, Chapter 2 incorporates the Draft EIS by reference and identifies corrections, updates, and edits to information in

[1] The Northeast Oregon Hatchery Project (NEOH) Spring Chinook Master Plan (Master Plan) (Ashe et al. 2000) documented a need for updated, modified, and augmented production facilities in Northeast Oregon. It found that current hatchery facilities do not provide adequate space, the best available technical and scientific advancements, or suitable rearing and migration conditions to support conservation and recovery of the Snake River spring/summer chinook. The Master Plan explains how existing hatchery facilities have become over-extended and unable to meet the mitigation goals of the Lower Snake River Compensation Plan (LSRCP) or the conservation and recovery goals for ESA-listed species.

the Draft EIS. Most of these errata reflect dropping the proposed construction of the Imnaha Final Rearing Facility, although a few revisions were made to better clarify and expand upon descriptions or analyses, and/or respond to particular comments made on the Draft EIS.

- **Chapter 3: Comments on Draft EIS and Responses.** Chapter 3 includes reproductions of comments provided on the Draft EIS and responses to those comments.

1.2 Purpose and Need for the Proposed Action

The purpose and need for the Proposed Action remain the same as described in the Draft EIS (Sections 1.1 and 1.2). They are included here (Sections 1.2.1 and 1.2.2, respectively) for continuity and to aid reader comprehension.

1.2.1 Need for Action

The Snake River spring/summer chinook salmon native to the Grande Ronde and Imnaha Rivers of Northeast Oregon are listed as threatened and are protected by the Endangered Species Act (ESA). Adequate, contemporary hatchery facilities are needed in mitigation and recovery of these fish stocks.

Currently, the Lookingglass Hatchery in the Grande Ronde subbasin and the Imnaha Satellite Facility in the Imnaha subbasin are the only two existing permanent hatchery facilities for spring chinook in Northeast Oregon. Both of these facilities were built in the early 1980s. These facilities do not provide adequate space, the best available technical and scientific advancements, or suitable rearing and migration conditions to provide for the conservation and recovery of ESA-listed species. The National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), U.S. Fish and Wildlife Service (USFWS) and local fishery and hatchery managers recognize that modernization and augmentation of hatchery facilities is needed to increase the success of mitigation efforts and to halt the decline of spring/summer chinook runs.

1.2.2 Purposes of Taking Action

Agency decision-makers and local fishery and hatchery co-managers will consider the following purposes (i.e. objectives) in evaluating alternative ways to meet the conservation and recovery needs described above:

- Provide adequate, contemporary hatchery facilities in the Grande Ronde and Imnaha subbasins to help in the conservation and recovery of ESA-listed spring/summer chinook salmon native to the Grande Ronde and Imnaha Rivers, and thus further implementation of the LSRCP's hatchery fish production program.

- Coordinate the operation at the existing Lookingglass Hatchery and related LSRCP hatchery facilities with the Fish and Wildlife Programs of the Northwest Power and Conservation Council (NPCC or Council), thereby aiding BPA's efforts to mitigate and recover anadromous fish affected by the Federal Columbia River Power System.

- Aid in BPA's fulfillment of mitigation and recovery goals outlined in Biological Opinion from NOAA Fisheries (formerly known as the National Marine Fisheries Service [NMFS]) on operation of the Federal Columbia River Power System (NMFS 2000a).

- Achieve economic efficiencies by integrating management of fish production programs and facilities.

- Be consistent with pertinent federal laws, regulations, and executive orders, and relevant plans and programs.

- Support the Nez Perce Tribe's (NPT) goal to restore anadromous fish populations and enhance the Tribe's opportunities to exercise treaty fishing rights.

1.3 Decisions To Be Made and Responsible Officials

While the decisions to be made and the responsible officials have not changed since publication of the Draft EIS, the text from the Draft EIS (Section 1.3) has been revised below to more clearly describe the relationships among the various entities involved in the Proposed Action.

BPA is the lead federal agency for purposes of NEPA compliance because it will decide whether to fund the final design, land acquisition, and facility construction and improvements. The NPT, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and the Oregon Department of Fish and Wildlife (ODFW) as co-managers of the spring/summer chinook conservation and recovery program in Northeast Oregon, have worked collaboratively to help develop the Proposed Action. Although not federal agencies, they are the primary cooperating agencies for this EIS, and would be operating and maintaining the facilities if constructed.

Several other entities have been consulted during the development of this EIS. The U.S. Forest Service (Forest Service) must decide whether to authorize/permit facility modifications at the Imnaha Satellite Facility. The USFWS is responsible for administering the LSRCP program, and must concur with the design of any facilities, approve modifications to Lookingglass Hatchery and the Imnaha Satellite Facility, and work with others to resolve any fish production issues that may result from the addition or modification of facilities serving the LSRCP program. The NPCC administers the Columbia River Basin Fish and Wildlife Programs and makes recommendations regarding project funding.

1.4 Summary of Public Involvement, Consultation, and Coordination

This section includes information taken from the Draft EIS (Executive Summary and Section 1.5) that has been edited slightly for clarity and flow. It has been updated to reflect publication of the Draft EIS, and additional public involvement, consultation, and coordination which has happened since.

In conformance with NEPA, BPA involved the public in meetings during the environmental review process to identify environmental issues and concerns. The public or interested and affected parties included local residents, local business owners, regional special interest groups involved with fish conservation, government agencies with regulatory responsibilities related to the environment, and others. Open scoping meetings were held in Imnaha, Oregon (January 15, 2002); Lostine, Oregon (January 16, 2002); and La Grande, Oregon (January 17, 2002). Several follow-up meetings and communiqués with particular groups and individuals also occurred.

The public raised concerns about potential effects on the biological environment, physical environment, and the social and economic environment. Specifically, the public had concerns about potential effects of the Proposed Action on ESA-listed fish species, other aquatic species, ESA-protected wildlife, big game, and plants, particularly ESA-protected plants and riparian plant communities. The public also raised issues about potential effects of the Proposed Action on water quantity and water quality and about whether proposed new facilities would unreasonably diminish values of the Imnaha and Lostine Wild and Scenic Rivers and the Hells Canyon National Recreation Area. Furthermore, the public expressed concern about potential noise, visual quality, and the effects of construction and operation of proposed facilities on health, safety, and

security of local residents and road-users. The public also asked about the costs of hatchery facilities in the context of other means to conserve and recover spring/summer chinook in Northeast Oregon. All of these issues were analyzed, and results were summarized in the Draft EIS Chapter 3, except for the value of hatcheries compared to other means to conserve and recover chinook, which was determined to be beyond the scope of this EIS (Draft EIS, Section 1.6).

Following publication of the Draft EIS, BPA held four public meetings in La Grande, Oregon (June 9, 2003); Enterprise, Oregon (June 10, 2003); Imnaha, Oregon (June 11, 2003); and Lostine, Oregon (June 12, 2003). Meeting attendance was small, except that the Lostine River Hatchery meeting was well attended. Most of the attendees represented neighbors of the two Lostine facilities. The comment period on the Draft EIS ran through July 7, 2003, during which time 19 comment letters and 1 petition were submitted. Chapter 3 of this Final EIS includes reproductions of all of the comment letters on the Draft EIS and responses to substantive comments.

On August 6 and November 9, 2003, BPA and the co-managers met with Forest Service representatives to discuss Wild and Scenic Rivers issues and respond to Forest Service concerns. The Bureau of Land Management (BLM) was contacted in December, 2003 to discuss any potential concerns related to the Grande Ronde Wild and Scenic River. The State of Oregon was contacted in late 2003 and early 2004 to discuss any potential concerns about state designated scenic waterway status of the Grande Ronde River. Neither BLM nor the State expressed concerns about potential (Proposed Action) impacts to the Grande Ronde River.

Consultation and coordination with the NPT and CTUIR are on-going with both tribes serving as leaders and decision-makers in setting project direction. On February 25, 2004, the Oregon State Historic Preservation Office documented its concurrence with BPA's determination that no historic properties would be affected by the Grande Ronde – Imnaha Spring Chinook Hatchery Project.

On June 1, 2002, BPA initiated formal consultation with NOAA Fisheries and USFWS as required by Section 7 of the Endangered Species Act. The project Biological Assessment (FishPro/HDR 2004a) is incorporated by reference in its entirety in this EIS.

1.5 Overview of Project Changes Since Draft EIS

The Draft EIS evaluates hatchery facilities on five sites (Figure 2-1, Draft EIS). However, the Imnaha Final Rearing Facility is no longer proposed for construction because, upon further study, the co-managers of the chinook fishery and hatchery facilities determined that the fish production program could be accomplished at the four other sites with minor refinements to their components, layouts, and operations. This configuration would meet the purpose and need for the Proposed Action, cost less, and avoid some environmental impacts.

The Final EIS evaluates the environmental effects of relocating the functions of the Imnaha Final Rearing Facility to the other facilities (existing and proposed) and of removing the existing Acrow panel bridge from the Imnaha Final Rearing Facility site for use at the Lostine Adult Collection Facility. Total ground area involved and environmental effects would be diminished overall (cumulatively) by foregoing the construction of the Imnaha Final Rearing Facility. Impacts at the four other sites are expected to be unchanged from the conditions assessed and disclosed in the Draft EIS.

Because of the plan to remove the existing Acrow panel bridge from the Imnaha Final Rearing Facility site, the site is included in the Proposed Action in this Final EIS and is referred to as the Acrow Panel Bridge Site.

1.6 Description of Proposed Action

The Proposed Action is to modify and modernize two existing hatchery facilities and construct two auxiliary hatchery facilities to aid spring/summer chinook conservation and recovery. The Master Plan recommends that hatchery facilities be designed and constructed to meet criteria of Natural Rearing and Enhancement Systems (NATURES), such as low density rearing, volitional release, natural lighting, and other more "natural" features, as described in the Draft EIS (Section 3.2.3.1). As described in the Draft EIS (Section 2.1), and summarized here, facility design and construction under the Proposed Action would comply with applicable regulatory requirements, permits, and guidance for protection of the environment and human well-being and safety, and would incorporate best management practices such as erosion and dust control, waste management, weed management, fire prevention, and work-hour and noise restrictions. The Proposed Action incorporates special measures such as retaining sensitive riparian vegetation, landscaping with native plants, erecting buildings reflective of local character, and shielding of facility lighting. Instream structures would meet applicable NOAA Fisheries and USFWS design requirements, and construction would be staged to accommodate and reduce impacts on existing fish production at each facility. Instream work would comply with applicable regulations and permits and would occur behind temporary cofferdams or other appropriate water diversions.

The Proposed Action (Figure 1-1, Final EIS) consists of constructing facilities at four of the five sites discussed below. No hatchery facility construction is proposed at the Acrow Panel Bridge Site, although the existing bridge would be removed for use at the Lostine Adult Collection Facility. Sections 1.6.1 and 1.6.2 of the Final EIS replace Sections 2.1.1 and 2.1.2 of the Draft EIS. Substantive changes or clarifying points are underlined and described, as needed, in *underlined italics*.

1.6.1 Grande Ronde Facilities

1.6.1.1 Lookingglass Hatchery

The proposed modifications are within the existing 11-acre hatchery compound, which is operated and maintained year round. Most of the modifications are additions to existing facilities or internal changes to existing structures (Figure 1-2, Final EIS). *The six-bay garage, additional raceways (and associated excavation), and powerline upgrade analyzed in the Draft EIS are no longer part of the Proposed Action*. Modifications to Lookingglass Hatchery include:

- Modifying the hatchery building (adding incubation trays to improve fish health, segregation, and monitoring and evaluation requirements of the hatchery fish production building).
- Modifying the hatchery building (increasing the size of the rearing troughs to reduce rearing densities).
- Installing bird netting to reduce predation on fish in raceways.
- Replacing the existing standby generator and upgrading the on-site electrical power supply to meet building code requirements and to provide adequate, reliable power to operate the facility year round.
- Adding a new standby generator at the intake building.

Water Requirements at Lookingglass Hatchery — No additional water withdrawals are proposed for this facility beyond those already authorized.

Construction Activities at Lookingglass Hatchery — Only incidental land disturbance would result from construction at this facility, and no instream work would be necessary.

1.6.1.2 Lostine Adult Collection Facility

Currently, fisheries managers use a collapsible panel weir *(incorrectly identified as a portable picket weir in the Draft EIS)* on the Lostine River near its confluence with the Wallowa River to collect adult spring/summer chinook for hatchery spawning. The weir cannot be safely or effectively operated during higher river flows (greater than 800 cubic feet per second [cfs]) typical during early spring to July when many adult chinook are migrating upstream, which restricts the number and genetic diversity of adults that can be collected to meet hatchery goals.

A new adult spring/summer chinook collection facility is proposed approximately 1 mile upstream (south) of the town of Lostine (private land purchase or easement). This site is located downstream of primary spring/summer chinook spawning areas, and the new facility (Figure 1-3, Final EIS) would be designed to operate effectively during typical higher flows (800 to 1200 cfs). The existing collapsible panel weir may continue to be used during periods of lower flows.

The new adult collection facility would be located on the west bank of the Lostine River, across from an existing fish screen/fish ladder/irrigation diversion complex. *Since the Draft EIS was published, the design has evolved to improve compatibility with the existing irrigation diversion by shifting the location of the release channel and fish ladder exit downstream 60 feet*. The new Lostine Adult Collection Facility would involve:

- Decommissioning the existing, deteriorating concrete fish ladder. The most upstream and most downstream sills would be entirely removed; the other sills would be partially removed to the extent needed and allowed to fill with stream gravels.

- Constructing a new concrete fish ladder and installing a modern, fish-friendly weir structure (termed a hydraulic velocity barrier) for adult fish passage and chinook broodstock collection. The new structure (primarily cast-in-place concrete) would meet NOAA Fisheries criteria and would greatly improve fish trapping and passage over a range of river flow conditions.

- Protecting the river's west bank from damage during high flow conditions by constructing a soil and rock levee, about 3- to 5-feet high and extending about 360 feet upstream of the exit of the fish ladder. Existing vegetation would be removed for levee construction. *(The levee was lengthened an additional 60 feet downstream to correspond with shifting the release channel and fish ladder exit.)*

- Protecting/stabilizing the river channel by placing riprap or a concrete retaining wall along both banks about 100 feet upstream of the new facility.

- Clearing, grading, and graveling an area to provide access for loading and transporting broodstock.

- Replacing the log bridge with a steel panel bridge (removed from the Acrow Panel Bridge Site) and placing the bridge abutments outside the ordinary high water level.

- Bringing new electrical service across the bridge and installing a transformer to provide power during collection operations for the hoist, and possibly for lights.

- Constructing a temporary construction access road from the Lostine River Road to the Lostine River, just upstream of the existing irrigation diversion.

Water Requirements at Lostine Adult Collection Facility — This facility would not require water withdrawals from the Lostine River or from groundwater wells.

Construction Activities at Lostine Adult Collection Facility — Instream work would be involved with most activities, although most would be contained within a ¼ acre area. About 2 acres would be cleared and graded adjacent to (above) the west bank of the Lostine River for construction staging and permanent access to the facility. Temporarily disturbed construction areas would be revegetated with native species early the following growing season for the best plant growth and survival.

1.6.1.3 Lostine River Hatchery

Currently, Lostine River spring/summer chinook adults are spawned at Lookingglass Hatchery. Incubation occurs at two hatcheries on the Columbia River: Oxbow Hatchery (near Cascade Locks, Oregon, about 250 miles west of Lookingglass) and Irrigon Hatchery (downstream of McNary Dam, about 100 miles away). Fish are reared at Irrigon and Lookingglass hatcheries. Smolts are then trucked to a temporary facility on the Lostine River for acclimation for a couple weeks prior to release. The temporary facility consists of two aboveground troughs, a portable pump, and piping. This temporary facility does not provide sufficient rearing capacity, or acceptable low-density rearing conditions.

The proposed Lostine River Hatchery would be a full-scale, multi-function facility with permanent staff and on-site housing, designed to hold Lostine River chinook during spawning and incubation through final rearing and release into the wild. Along with the proposed adult collection facility downstream, this hatchery would have all the elements necessary to successfully support the Lostine River spring/summer chinook component of the hatchery fish production program (Figures 1-4 and 1-5, Final EIS).

The Lostine River Hatchery would be designed to hold the Imnaha River broodstock for spawning and egg incubation to the eyed stage. The Lostine River Hatchery would also hold half of the Imnaha River spring/summer chinook program from incubation to final rearing. The remainder would be reared at Lookingglass Hatchery (where Imnaha stock is currently reared).

The proposed Lostine River Hatchery would be located on a 6-acre site (private land easement and/or purchase) about 4 miles upstream (south) of the proposed Lostine Adult Collection Facility and would involve:

Installing a water supply intake (Figure 1-5, Final EIS) about ½ mile upstream of the proposed hatchery, just above where the Lostine River Road (County Road 551) crosses the Lostine River. The intake would include a fish screen and trash rack, meeting current NOAA Fisheries criteria for such structures, and would require installing a pneumatically-controlled weir *(Obermeyer gate™ in the Draft EIS)* to raise the surface water elevation to provide sufficient flow to the intake. A vertical slot fish ladder *(pool and weir ladder in Draft EIS)* would be installed to provide upstream and downstream fish passage past the weir structure. A small shed would house the air compressor used to inflate the weir and clear the intake screens. *(These design clarifications would not change the environmental effect of the Proposed Action.)*

- Building a 12-foot wide gravel access road and parking area for permanent access to the intake and temporary construction staging.

- Burying a 24-inch pipeline from the intake to the hatchery site along the Lostine River Road and Granger Road, the existing access to the hatchery site.

- Installing 12-inch pipelines from three existing groundwater supply wells to provide required pathogen-free water for egg incubation and smolt rearing. Small buildings would be placed at each well site to protect the wellhead, pumps, and other equipment. These wells would also provide potable water to staff residences.

- Building a spawning room, including 6 adult holding ponds and isolation tanks for Lostine and Imnaha stocks.

- Constructing a building for egg incubation and early rearing of both Lostine and Imnaha smolts and a laboratory, each complete with necessary apparatus (utilities, supplies, chillers, heaters, drains, vents, etc.).

- Constructing 10 smolt rearing raceways (two banks of five raceways) for holding Lostine and Imnaha stocks.

- Installing a water overflow system from the raceways. Flow would be directed to the hatchery outfall pipeline, volitional release pipeline, hatchery drain, or effluent return pump station.

- Installing a pump station and 18-inch pipeline to return hatchery water back upstream to the base of the fish ladder near the intake. This water, primarily river water with some groundwater, would restore flows in the Lostine River and help attract fish to the ladder, for moving upstream and downstream.

- Constructing an operations building with office space, bunkhouse for temporary and seasonal personnel, shop, electrical room, generator room, garage, and outdoor parking space for three vehicles.

- Constructing a small single family residence and remodeling an existing single family residence for permanent hatchery personnel.

- Building a basin for settling waste from water released when smolt raceways are cleaned. A sump pump would be installed in the cleaning basin to drain it so waste could be periodically removed and trucked to an appropriate off-site disposal facility.

- Constructing a concrete outfall downstream of the hatchery. Water from the hatchery's rearing raceways and cleaning basin would be conveyed through a 24-inch pipe and released into the river through the partially submerged outfall. Smolts would also be released through the pipe and outfall. The outfall's small valve opening and removable bar grate would prevent adult fish from entering the pipe.

- Installing a new septic system to serve the residences, operations building, and the incubation and early rearing facilities.

- Upgrading to a three-phase electrical power supply to the hatchery, conveyed along about 3 miles of the existing PacifiCorp easement. A transformer would be installed at the site's main operations building, and a generator would provide emergency backup power.

- Paving Granger Road from the Lostine River Road to the hatchery when hatchery construction is completed.

- Removing the existing temporary acclimation facility when the new facility is operational.

Water Requirements at Lostine River Hatchery — Lostine River flows vary widely, with average flows ranging from 50 cfs in the winter to 800 cfs in June, during the snowmelt. In September, when spring/summer chinook spawning occurs, the average flow is 50.2 cfs, and recommended withdrawals of 17.8 cfs would result in 32.4 cfs through the bypass reach. Hatchery water withdrawals would be managed to maintain adequate stream depth and instream flows for fish habitat and passage. During low flow periods, a pump back system would ensure a minimum of 12 cfs or 50 percent of the total flow through the bypass reach, whichever is greater (FishPro/HDR 2004a). Three new groundwater wells would provide up to 1,350 gallons per minute (gpm) to the facility (Montgomery Watson 2001). *(The available groundwater from project wells has been updated from the 1,200 gpm noted in the Draft EIS to reflect the results of supplemental testing.)*

Construction Activities at Lostine River Hatchery — The Lostine River Hatchery would require clearing about 5 acres of undeveloped upland, currently used as horse pasture, and adjacent woodlands. Trees would be protected, unless they pose a safety hazard or lie along the outfall pipeline corridor. Trees that would need to be removed may be used as instream structures for fish enhancement in the watershed. The site would be graded and filled with 5,000 to 6,000 *(10,000 in Draft EIS)* cubic yards of rock from a nearby quarry to level the site and to provide some flood protection.

Site clearing and foundations and exteriors for the main buildings would be undertaken first to allow other work to continue indoors during the winter months. Severe weather conditions may occasionally stop outdoor work activities. Construction of the raceways, incubation and spawning building, water cleaning basin, and related structures and piping would occur during the second construction season.

Because the hatchery would be located in a subdivision of rural cabins, special measures would be taken to avoid neighborhood disturbance from unreasonable noise, dust, light, traffic, and other possible construction-related annoyances. Though normal work hours would be 8 a.m. to 5 p.m., 5 days a week, 12-hour work days for 6 days a week would be needed during crucial instream work windows (normally July 15 to August 15) to accomplish necessary work. Two instream work seasons would likely be needed to complete construction of the hatchery facilities. The first instream work window would be used to construct the river water intake and fish ladder, which would include removal of a portion of the riverbank to place the intake. The eastern portion of the weir, including bank abutments, would also be constructed during the first year's instream work window. The second instream work window would be used to install the remaining portion of the pneumatically-controlled weir, the surface water pipeline at the intake, and the downstream hatchery outfall. Upstream and downstream fish passage would be maintained during instream work, as cofferdams would isolate the construction area on respective banks, allowing free flow on the other side of the river. Less than ½ acre of instream work would be involved.

1.6.2 Imnaha Facilities

1.6.2.1 Acrow Panel Bridge Site

The text in this section totally replaces the text in Section 2.1.2.1 of the Draft EIS.

The proposal is to remove the existing Acrow panel bridge across the Imnaha River (Figure 1-6, Final EIS) for use at the Lostine Adult Collection Facility and to rehabilitate areas disturbed by bridge removal.

Water Requirements at Acrow Panel Bridge Site — No water diversions or withdrawals are proposed at this site.

Construction Activities at Acrow Panel Bridge Site — The existing bridge panels and concrete abutments would be removed, which would temporarily disturb riparian banks and vegetation. A skid-steer loader and crane would each cross the Imnaha River twice (across and back). The entire removal would likely take less than a week. No trees would be removed, although a few shrubs may be. Disturbance would be minor and riparian areas would be revegetated with native plants. *(This would be an improvement over the existing condition and over the proposal analyzed in the Draft EIS.)*

1.6.2.2 Imnaha Satellite Facility

The existing Imnaha Satellite Facility is located about 29 miles upstream (south) of the town of Imnaha on about 6 acres of land administered by the Forest Service. The facility, a satellite of Lookingglass Hatchery, is operated seasonally under a special use permit from the Forest Service. The USFWS owns the facility and holds the special use permit. The ODFW operates the facility as an adult chinook holding and smolt release facility. The facility has deficiencies that limit its effectiveness to safely and efficiently collect and hold adult fish by contemporary standards.

The proposed facility improvements are located within the existing hatchery compound (Figure 1-7, Final EIS). Modifications are proposed to allow for more efficient collection of broodstock over a greater range of flows, and to allow for improved short-term adult holding prior to transfer to the Lostine River Hatchery for spawning. Improvements to the existing juvenile acclimation pond are also proposed to allow for final rearing at preferred densities prior to release.

Spawning is no longer proposed at this facility, so adding an egg incubation room as proposed in the Draft EIS is unnecessary. Because the operating season would be shorter without a spawning operation the powerline would not be extended 6 miles to the site (this also would reduce project cost). The addition of a more effective fish ladder alongside the existing ladder to increase fish attraction at the ladder entrance is no longer part of the proposal. Instead, an auxiliary water supply pipeline would provide increased attraction flows.

The current facility is deficient in adult collection and holding and does not allow acclimation within NATURES operational criteria. Improving the facilities would involve:

- Replacing the existing picket weir with a hydraulically operated weir *(Chiwawa weir™ in Draft EIS)* that functions safely and effectively at higher river flows.
- Enlarging the trapping and holding area.
- Expanding the existing intake to provide more water for acclimation and to improve adult attraction to the fish ladder. The existing fish ladder would be maintained with a new auxiliary water supply pipeline and diffuser constructed adjacent to the existing fish ladder to increase attraction flows.
- Constructing a new 24-inch conveyance pipeline from the new intake, as well as a NOAA Fisheries-compliant debris and fish screen on the existing intake.
- Constructing a rock sluice *(more efficient that the settling basin proposed in the Draft EIS)* for trapping sand and silt before the water flows into the acclimation ponds.
- Developing an on-site well to replace the existing domestic water supply well for domestic use and for use in the adult holding spray system.

- Enlarging the existing juvenile chinook acclimation pond to provide more space for acclimating fish at preferred densities.

- Shifting the septic drain field to replace the drain field area displaced by construction. *(There would be no change in overall size or function of the drainfield.)*

Water Requirements at Imnaha Satellite Facility — An additional 11.3 cfs (for a total of 20.3 cfs) would be diverted from the Imnaha River for acclimation of smolts and adult holding and collection during peak usage periods (FishPro/HDR 2004a). *(Surface water diversions are reduced from the Draft EIS quantities of 13 cfs additional and 26 cfs total.)* Up to 100 gpm of groundwater would be pumped from a new well for domestic use and for adult holding spray systems.

Construction Activities at Imnaha Satellite Facility — Proposed improvements, including instream work to replace the weir and modify the intake, would involve less than ½ acre, much of which has been previously altered by development. About 650 feet of new pipeline would be buried next to the existing water pipeline under the existing gravel road.

Due to the remote location and harsh winter conditions, construction would likely occur only between late April and early November. Construction would be scheduled to avoid disrupting existing hatchery operations when feasible. However, during installation of the hydraulically operated weir, and the addition of the auxiliary pipe and diffuser box at the fish ladder entrance, migrating fish would be temporarily trapped below the site for broodstock collection and for release above the site. All in-water construction activities would take place during the ODFW-approved work window for the Imnaha River (July 15 – August 15).

1.7 No Action Alternative

The No Action Alternative remains the same as described in the Draft EIS (Section 2.2),It is repeated here for continuity and to aid reader comprehension.

NEPA requires consideration of a No Action Alternative to provide an environmental baseline against which consequences of the Proposed Action (and any alternatives) can be compared. "No Action" in this EIS means the current activities would continue with no changes to the function, type, or number of available facilities. However, the existing facilities would deteriorate over time due to age and use.

Existing facilities would continue to be relied upon to support the conservation and recovery program for the spring/summer chinook in Northeast Oregon. Current disease risks and other problems, insufficiencies, and limitations associated with the existing situation would likely stay the same or possibly improve slightly with changes in practices and minor upgrades over time. Lostine and Imnaha chinook stocks would continue to be incubated and reared away from their natal waters, and acclimated at the facility on the Lostine River and at the Imnaha Satellite Facility.

The No Action Alternative means that the production of spring/summer chinook at Lookingglass Hatchery would continue below levels desired for conservation and recovery goals, and at elevated risk of a complete loss of a year's production of one or more stocks of fish in the event of a system failure or operational accident.

1.8 Alternatives Eliminated from Detailed Study

The Alternatives Eliminated from Detailed Study section remains the same as described in the Draft EIS (Section 2.3)It is repeated here for continuity and to aid reader comprehension. A few points of clarification and updates are underlined where they occur.

The following alternatives were considered in the planning process (Ashe et al. 2000), but have been eliminated from detailed study because they are either physically or economically infeasible, or did not meet the purposes or need for taking action presented in Chapter 1 of this EIS. See Chapter 3 of the Master Plan (incorporated by reference in this EIS, available upon request from BPA) for a complete description of the following alternatives and the screening process used to eliminate them from further study.

1.8.1 Modify Lookingglass Hatchery and Use, Add, or Modify No Other Facilities

This alternative sought to modify Lookingglass Hatchery to the extent necessary to meet full production goals for all fish stocks managed for mitigation, conservation, and recovery goals in Northeast Oregon. However, this alternative would not provide sufficient space or water supply to substantially improve the fish production program. Chapter 3.3.1 of the Master Plan contains more detailed information about this alternative.

1.8.2 Use or Modify Existing Facilities Elsewhere in the Columbia Basin to Assist Lookingglass Hatchery Production

Co-managers considered using existing facilities throughout the Columbia Basin to assist Lookingglass Hatchery in meeting its fish production goals. Though the preferred production strategy requires rearing fish in their natal watershed, all anadromous fish hatcheries in the Columbia Basin and one on the Oregon coast were evaluated. Tables 3-3 and 3-4 of the Master Plan list and describe the 12 facilities reviewed.

The facilities were also reviewed in the NEOH Final Siting Report (Montgomery Watson 1995a). The evaluation resulted in the elimination of each of these facilities for one or more of the following reasons: restricted expansion potential and/or existing facilities near capacity; inadequate water supply to accommodate expansion; poor water quality or undesirable temperature regimes; excessive distance to and from the Grande Ronde and Imnaha subbasins for safely transporting eggs and smolts; and/or did not meet goal of maximizing production within natal waters. Chapter 3.3.2 of the Master Plan contains more detailed information about this alternative.

1.8.3 Put New Facilities at Other Sites in Northeast Oregon to Assist Lookingglass Hatchery Production

Co-managers studied many sites in the Imnaha and Grande Ronde subbasins for potential new facilities (Table 1-1). Chapter 3.3.3 of the Master Plan describes the sites, screening criteria, and evaluation process used to eliminate them from detailed study in this EIS. Sites were evaluated based on their potential to accommodate a main hatchery facility or several smaller, integrated facilities to serve one or both basins.

This investigation found that only the Imnaha Final Rearing Facility site (Wayne Marks Ranch, site 10) and the Lostine River Hatchery site (adjacent to the ODFW Bighorn sheep range, site 21), both of which were included in the Proposed Action and analyzed in the Draft EIS (Section 2.1), had adequate water flow, supply, and temperature; space; and power supply near historic spawning areas to efficiently accommodate certain critical facilities. All other sites have therefore been eliminated from further consideration. The Imnaha Final Rearing Facility (Wayne Marks Ranch) is no longer proposed for construction because upon further study, the co-managers of the chinook fishery and hatchery facilities determined that they could accomplish the production program at the four other sites with minor refinement to their components, layout, and operations.

Table 1-1. Sites Investigated

Imnaha Subbasin Sites	Grande Ronde Subbasin Sites	
1. Indian Crossing	1. Catherine Creek N&S Fork confluence	16. Wallowa Lake
		17. Hayes Fork-Prairie Creek
2. Gumboot Creek (existing facility)	2. Catherine-Milk Creek confluence	18. Wallowa Hatchery
3. Grouse Creek-Imnaha confluence	3. Catherine Creek at Union	19. Big Canyon Creek
4. Big Sheep-Lick Creek confluence	4. Vey Meadows	20. Minam River – Wallowa River confluence
5. Big Sheep Creek	5. Sheep Creek	
6. Big Sheep-Little Sheep confluence	6. Beaver Creek	21. ODFW Bighorn sheep range
	7. Sanderson Springs-Mill Creek	22. Strathearn Ranch
7. Little Sheep Creek	8. Lower Willow Creek near Elgin	23. Lostine Dam
8. Gene Marr Ranch	9. Indian Creek near Elgin	24. Clearwater Ditch Diversion – Lostine River
9. Horse Creek	10. Grande Ronde near Elgin	
10. Wayne Marks Ranch	11. Lookingglass Hatchery	25. Davis Dam-Catherine Creek
	12. Wildcat Creek Area	26. Minam above Wallowa River
	13. Fish Ladder	27. Wallowa River below Minam confluence
	14. Flora Grade	
	15. Cottonwood Creek	28. Wenaha River above Troy
Source: Montgomery Watson 1995a.		

The Strathearn Ranch (site 22), about 2 miles downstream of the Lostine River Hatchery site, met the project requirements, but the owner ultimately decided not to make the property available. Project Team members also investigated, and eliminated from further consideration, possible sites on the west side of the Lostine River. The one feasible west-side site was dropped from further consideration because it would require substantially more site development; have a potentially greater impact to adjacent landowners; and result in more disruption and potential impact to the natural environment (McMillen 2003, personal communication).

1.9 Comparison of Alternatives and Summary of Potential Impacts

Table 1-2 compares the Proposed Action and the No Action Alternative to the stated purposes of taking action. *This table has been updated to reflect that the Imnaha Final Rearing Facility is no longer part of the Proposed Action. Table 1-2 replaces Table 2-2 in the Draft EIS.*

Table 1-3 compares the facilities associated with the Proposed Action and the No Action Alternative. *This table has been updated to remove the Imnaha Final Rearing Facility and incorporate the Acrow Panel Bridge site. Table 1-3 replaces Table 2-3 in the Draft EIS.*

Table 1-4 summarizes potential impacts (environmental consequences) of the Proposed Action and the No Action Alternative. *This table has been updated to remove the Imnaha Final Rearing Facility and incorporate the Acrow Panel Bridge site. Table 1-4 replaces Tables ES-1 and 2-4 in the Draft EIS.*

Table 1-2. Comparison of Proposed Action and No Action Alternative to the Stated Purposes of Taking Action

Purposes of Taking Action	Proposed Action	No Action Alternative
Provide adequate, contemporary hatchery facilities in the Grande Ronde and Imnaha subbasins to help in the conservation and recovery of ESA-listed native chinook and further the implementation of the LSRCP hatchery fish production program.	Would meet this purpose to the greatest extent. Implementation of the full program would provide facilities adequate to support conservation and recovery of Grande Ronde and Imnaha spring/summer chinook.	Would only provide facilities to implement partial program elements. Existing facilities are currently undersized and inadequate for the proposed low density rearing programs.
Coordinate the operation of Lookingglass Hatchery and related LSRCP hatchery facilities with the Fish and Wildlife Program of the NPCC, thereby aiding BPA's efforts to mitigate and recover fish affected by FCRPS.	Would meet this purpose to the greatest extent. Modifications proposed to Lookingglass Hatchery would better accommodate the Catherine Creek and Upper Grande Ronde (includes Lookingglass Creek), and Imnaha components of the hatchery fish production program and transfer Lostine stock responsibilities to additional facilities on natal stream for full implementation of the LSRCP.	Would not meet this purpose. Lookingglass Hatchery would continue to be relied upon, despite a review that found it could not meet program goals even with substantial modifications. The No Action Alternative could also result in a system failure at Lookingglass Hatchery and complete loss of a year's production of one or more of the stocks currently reared there.
Aid in BPA's fulfillment of mitigation and recovery goals outlined in the Biological Opinion of NOAA Fisheries on operation of the FCRPS.	Would meet this purpose to the greatest extent. The modernization and improvement of existing facilities, and construction of certain new facilities, provide the potential for restoration and prevention of extinction of spring/summer chinook. The Proposed Action would support the recovery goals for operation of the FCRPS.	Would not meet this purpose. Existing facilities would continue to be relied upon to support the conservation and recovery program for the chinook in Northeast Oregon. Current disease risks and other problems, insufficiencies, and limitations associated with the existing situation would continue. Lostine and Imnaha chinook stocks would continue to be incubated and reared away from their natal waters, except for the temporary rearing facility on the Lostine River.
Achieve economic efficiencies by integrating management of fish production programs and facilities.	Would meet this purpose. Implementation of this project supports integration and coordination of LSRCP, BPA, NPCC, NPT, CTUIR, and ODFW hatchery management interests and expenditures.	Coordination and economic efficiency are constrained by the limitations of the existing hatchery facilities to meet LSRCP mitigation goals or the conservation and recovery objectives for ESA-listed species shared by the fishery managers.
Be consistent with pertinent laws, relevant plans and programs, and tribal objectives for fishery management and harvest.	Would meet this purpose to the greatest extent, particularly related to mitigation and recovery of ESA-listed species.	Would not be inconsistent with any laws, relevant plans and programs, or tribal objectives, but would not further any objectives contained therein.

Table 1-3. Comparison of Facilities Associated with Proposed Action and No Action Alternative

Facilities	Proposed Action	No Action Alternative
Number of Sites Involved	5 Sites[2] Lookingglass Hatchery Lostine Adult Collection Facility, including the Lostine Adult Collection Weir Lostine River Hatchery Acrow Panel Bridge Site Imnaha Satellite Facility	4 Sites Lookingglass Hatchery Lostine Adult Collection Weir, included as part of the Lostine Adult Collection Facility site Lostine Acclimation & Rearing Imnaha Satellite Facility
Approximate Acres Occupied	Lookingglass Hatchery (11) Lostine Adult Collection Facility, including the Lostine Adult Collection Weir (3) Lostine River Hatchery (6) Acrow Panel Bridge Site (0) Imnaha Satellite Facility (6)	Lookingglass Hatchery (11) Lostine Adult Collection Weir, included as part of the Lostine Adult Collection Facility site (1) Lostine Acclimation & Rearing (1) Imnaha Satellite Facility (6)
Number of Sites Improved	2 Sites Lookingglass Hatchery Imnaha Satellite Facility	None
Number of New Sites	2 Sites Lostine Adult Collection Facility Lostine River Hatchery	None

[2] Acrow Panel Bridge Site is included in Final EIS for analysis of bridge removal. The Proposed Action no longer includes fish hatchery facilities at this site.

Table 1-4. Summary of Environmental Consequences of Alternatives

Environmental Resource	Proposed Action*	No Action Alternative
3.2 Fisheries		
Targeted spring/summer chinook	Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species population viability. No impacts to individuals or populations are expected from discharges at the proposed facilities. Individuals and the population would benefit from improved passage as well as adult attraction and collection facilities. The population would benefit from improved broodstock collection and holding facilities. Incubation and rearing practices resulting from the proposed facilities would increase population viability and benefit the species in the long-term. Fish health maintenance activities would benefit individuals and the population by reducing disease potential.	Risks to hatchery production needed to maintain population viability would increase in the long-term because of the inadequacy of current facilities.
• Non-targeted chinook	Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species population viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress from installation of weirs, ladders, and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact non-targeted chinook population viability. Incubation and rearing practices at the proposed facilities would have no impact on non-targeted chinook. Fish health maintenance activities would benefit individuals and the population by reducing disease potential.	No change.

Environmental Resource	Proposed Action*	No Action Alternative
• Other salmonids	Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress from installation of weirs, ladders, and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact population viability of other salmonids. Incubation and rearing practices at the proposed facilities would have no impact on other salmonids. Fish health maintenance activities would benefit individuals and the population by reducing disease potential.	No change.
• Non-salmonids	Site disturbances and channel alterations would create minor localized impacts that would not affect species viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress from installation of weirs, ladders, and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact population viability. Incubation and rearing practices at the proposed facilities would have no impact on non-salmonids. Fish health maintenance activities would have no impact on non-salmonids.	No change.

Environmental Resource	Proposed Action*	No Action Alternative
3.3 Wildlife		
• ESA species	No state or federally listed species are known to nest or breed at project sites. Bald eagle roosts or potential roosts have been documented at or near all sites except ISF. Tree removal at LRH and LACF may reduce the number of potential roost sites.	No change.
• Other species	Temporary displacement during construction activities (noise and presence of humans) would be the primary consequence to big game and other wildlife species that use project sites.	No change.
3.4 Plants and Wetlands		
• ESA species	No state or federally listed plant species are known to occur at any project sites.	No change.
• Other native species	Varying amounts of native vegetation would be disturbed or displaced by facility structures. All sites will be replanted with native species. Some loss of riparian habitat is anticipated at LACF and LRH.	No change.
• Non-native species	All facilities will be maintained to discourage non-native, invasive, and weed species.	No change.
• Wetlands	LACF and LRH – Net loss of minor amount of wetlands (less than ½ acre combined). Mitigation – Conduct formal wetland delineations and implement compensatory wetland mitigation as required in consultation with regulatory agencies.	No change.
3.5 Geology		
• Approximate acres temporarily disturbed and permanently altered	LGH – incidental disturbance within existing facility (total existing facility about 11 acres). LACF – 2 acres (total site about 3 acres). LRH – 5 acres temporarily, 3 acres permanently, altered (total site about 6 acres). APBS – 0 acres occupied after bridge removed. ISF – < ½ acre within existing facility (total existing facility about 6 acres).	LGH – No change. LACF – No change. LRH – No change. APBS – No change. ISF – No change.
• Slope/bank stability	Stability unchanged.	Stability unchanged.
• Erosion	Short-term, localized erosion during construction.	Erosion potential unchanged.

Environmental Resource	Proposed Action*	No Action Alternative
3.6 Hydrology		
• Water quality	Localized temporary construction-related runoff and sedimentation within applicable standards.	Water quality unchanged.
• Water quantity	LRH – occasional short-term reduced flows along hatchery reach in extremely dry or cold periods (up to 50 percent reduction during extreme low flows; during those times, river and well water would be pumped back to the intake location). ISF – similar to LRH, but shorter duration and extent; minor flow regime alteration during periods of extremely low flows.	Water quantity unchanged.
• Flow restrictions / floodplains	LACF and LRH – localized flow restriction, concentration, and scouring. APBS – slight improvement with removal of bridge and bridge abutments. ISF – slight improvement with new weir.	Flows unchanged.
3.7 Wild and Scenic Rivers		
• Imnaha River	Instream structures at ISF would slightly constrict natural river flow and decrease vegetation; slight improvement with bridge and abutment removal at APBS and new weir at ISF; likely improvement over time to fisheries ORV, as well as lifestyle and recreation ORVs.	No change to Imnaha flow conditions; forego bridge removal at APBS and slightly improved replacement structures at ISF; and forgo future improvement to fisheries ORV and related recreation and lifestyle ORVs.
• Lostine River	Not likely to invade area or unreasonably diminish values of Wild and Scenic designation.	No change.
• Grande Ronde River	Not likely to invade area or unreasonably diminish values of Wild and Scenic designation.	No change.
3.8 Cultural Resources	No effect. If evidence of cultural materials is found later, work or activity would be halted until the site could be assessed.	No effect.
3.9 Aesthetics (Visual Quality)	LGH – no effect on overall visual character. LACF – limited effect on overall visual character. LRH – limited effect; visible to nearby residents. APBS – slight improvement on visual character and views from Road 551. ISF – limited effect on overall visual character.	LGH – No change. LACF – No change. LRH – No change. APBS – No change. ISF – No change.

Environmental Resource	Proposed Action*	No Action Alternative
3.10 Land Use, Recreation and Transportation		
• Land Use	Facilities consistent with local zoning as applicable, permitted outright or as conditional use; ISF on Forest Service land, would require reissuing special use permit.	No change.
• Recreation	No effect on recreation, except possible long-term benefit if chinook stocks sufficiently recover to enhance viewing and fishing.	No change.
• Transportation	Short-term traffic increase during construction. LACF – improve trout farm bridge and parking. LRH – pave Granger Road.	No change.
3.11 Socioeconomics	No change to population; some increase to employment, especially during construction; and some benefit to local economy if chinook recover and stimulate recreation or fishing.	No change; potential for some adverse effect on local economy if salmon stocks continue to decline.
3.12 Air Quality	Short-term increase in particulates during construction; no long-term effect.	No change.
3.13 Noise	LGH – temporary increase in area noise levels during construction; long-term potential to decrease noise levels at facility with new buildings and equipment. LACF – temporary increase in area noise levels during construction. LRH – temporary increase in area noise levels during construction; long-term noise associated with traffic to the facility and additional residence. APBS – temporary increase in area noise levels during bridge removal. ISF – temporary increase in area noise levels during construction.	No change at any of the sites.
3.14 Public Health and Safety	Potential minor increased demand for public services (fire, hospital, etc.) and increased traffic during construction.	No change at any of the sites.

*Proposed Action
LGH = Lookingglass Hatchery
LACF = Lostine Adult Collection Facility
LRH = Lostine River Hatchery
APBS = Acrow Panel Bridge Site
ISF = Imnaha Satellite Facility

1.10 Summary of Mitigation Measures

The Proposed Action would be, in large part, self-mitigating due to the inclusion of best management practices, conservation measures, and special design considerations. As discussed in the Draft EIS and project Biological Assessment, these measures are included as components of the Proposed Action, and would be requirements placed on contractors during construction of the facilities. Additional measures may be included as the result of further consultation and coordination with regulatory agencies and in the pursuit of any applicable permits and approvals, which may be implemented during facility construction and operation.

Construction Measures — Specific measures to be taken during (or prior to) construction would include:

Fish

- Monitoring the Imnaha and Lostine Rivers (through visual observation) for delays to upstream or downstream migrating fish during instream activities.

- Completing all in-water work during instream work windows as stipulated by ODFW for the protection of salmonids and other species and in compliance with the conditions of the Joint Permit to be issued by the U.S. Army Corps of Engineers (USACE) and the Oregon Department of Environmental Quality (DEQ).

Wildlife

- Leaving snags (dead trees) and perch trees (trees with broken tops or limbs) in place, when safe to do so, to provide wildlife habitat.

Plants and Wetlands

- Conducting formal wetland delineations at the Lostine River Hatchery and Lostine Adult Collection Facility sites and implementing any compensatory wetland mitigation based upon the outcome of those delineations and applicable regulations.

- Implementing weed control measures as required by local weed management authority.

Soils and Erosion

- Limiting the disturbance of riparian and other vegetation to the minimum amount necessary to achieve construction objectives to minimize habitat alteration and limit the effects of erosion and sedimentation. Re-establishing native vegetation in temporarily disturbed sites.

- Developing a grading plan and a temporary erosion and sedimentation control plan prior to site preparation to minimize disturbed areas and erosion.

- Identifying clearing limits on all construction drawings, and fencing with silt fences or orange construction fencing prior to the initiation of staging or construction activities to clearly define the clearing limits and protect non-project areas from vehicle intrusion.

- Constructing temporary sediment control ponds (settling basins) as a first step in grading before any additional soil disturbance occurs.

- Placing sedimentation and erosion control measures, such as silt fencing and straw bales, and covering exposed soils with plastic sheeting, jute matting, or mulching to minimize erosion and prevent sediments from entering waterways and wetland habitats.

- Protecting all exposed areas that must remain bare for more than 30 days between July 1 and October 31 with straw mulch, plastic covering, or other materials to prevent erosion.

Water Quality

- Using synthetic hydraulic oil in all heavy equipment to be operated in or near surface water and performing all equipment maintenance outside of riparian areas.

- Using plastic sheeting or other containment methods to prevent dust, slurry, and other wastes from concrete cutting activities from entering the river.

- Designating and constructing on-site, temporary concrete washout facilities, if needed, with sufficient volume to contain all liquid and concrete waste generated.

Cultural Resources

- Monitoring soil disturbing activities for evidence of cultural resources.

Air Quality

- Watering Granger Road during construction in dry weather and paving Granger Road at the termination of project construction activities to protect air quality (by reducing fugitive dust).

Noise

- Limiting Lostine River Hatchery construction activities to between 8 a.m. and 5 p.m., Monday through Friday (except during instream work windows [normally July 15 – August 15] when work would occur for up to 12 hours per day, 6 days per week) to reduce construction-related noise impact on nearby residents.

Public Health and Safety

- Implementing fire prevention measures.
- Posting safety signs around construction sites and access roads as needed.
- Implementing traffic control measures where public traffic might be impeded.

Operational Measures — Specific measures to be taken during facility operations would include:

Fish

- Monitoring the Imnaha and Lostine Rivers (through visual observation) for delays to upstream or downstream migrating fish during fish trapping activities.

- Monitoring the weirs (through visual observation) to verify successful fish passage during facility operation.

- Minimizing handling of non-target fish species, particularly bull trout, and observing fish conditions during hatchery operations. Releasing all non-target species from the trap and allowing them to continue upstream within 24 hours of trapping.

- Notifying the Snake River Office of the USFWS immediately if injured or dead bull trout are observed in weirs or near hatchery facilities, and discussing the need to modify operations to take all reasonable and prudent measures to avoid harm to bull trout.

- Inspecting weirs and ladders for accumulation of debris during migrational periods and taking action to clear debris buildup.

- Pumping back water at the Lostine River Hatchery during low flow periods to ensure a minimum of 12 cfs or 50 percent of the total flow through the bypass reach whichever is greater.

- Implementing other measures during program implementation to monitor the overall success of the spring/summer chinook recovery program (as discussed in Hesse and Harbeck 2004).

Plants

- Implementing ongoing weed management at all sites.

Water Quality

- Conducting water quality monitoring as specified by National Pollutant Discharge Elimination System (NPDES) permits.

- Monitoring Lostine River flows (through gages and/or real-time U.S. Geological Survey [USGS] data) and pumping back hatchery water (and supplemental well water, if needed) to ensure a minimum of 12 cfs or 50 percent of the total flow, whichever is higher, through the bypass reach of the Lostine River.

Visual Quality

- Planting and maintaining native species for facility landscaping and to screen structures from public view.

- Constructing and maintaining buildings that incorporate materials, colors, and architectural styles reflective of local character.

- Shielding exterior lighting to direct light downward, not off-site.

1.11 Cumulative Impacts

1.11.1 Cumulative Construction Impacts

Because the Forest Service manages the Lostine and Imnaha River corridors as Wild and Scenic Rivers, development and land use activities are limited and restricted within and around the Proposed Action sites. Construction of the Proposed Action facilities is expected to result in low environmental impact to the facility sites, in the area (Wallowa and Union Counties) and in the region (Northeast Oregon and adjacent areas of Washington and Idaho). Cumulative environmental impacts related to construction are also expected to be low on the site-specific, local, and regional scale due to the limited amount of concurrent development. Building permits anticipated during the time of project construction would be primarily for private residences. An unrelated potential project to rehabilitate the poorly functioning dam at Wallowa Lake may occur concurrently with project construction, but would not be expected to result in significant cumulative impacts.

1.11.2 Cumulative Operational Impacts

Cumulative, long-term impacts (5 to 25 years) associated with the Proposed Action and project operations are expected to be low, except in the case of target and non-target fish species, where cumulative impacts associated with other fish habitat and facility improvement projects are expected to be beneficial on the site-specific, local, and regional scale. The cumulative impact of the Proposed Action and ongoing efforts in Wallowa County (Wallowa County/NPT Salmon Habitat Recovery and Multi-Species Strategy), Union County (Grande Ronde Basin Model Watershed Program), and through the LSRCP are expected to be beneficial to the recovery of spring/summer chinook salmon populations. Chapter 3.2.4 of the Draft EIS contains additional information regarding the cumulative impacts on fisheries. Consideration of issues related to cumulative impacts of the hatchery production program is outside the scope of this EIS.