

memorandum

DATE: November 18, 2002

REPLY TO
ATTN OF: KEC-4

SUBJECT: Supplement Analysis for the Mid-Columbia Coho Reintroduction Feasibility Project EA
(DOE/EA-1282/SA-03)

TO: L. Hermeston - KEWL-4
Fish and Wildlife Project Manager

Proposed Action: New acclimation sites

Project No: 1996-040-00

Location: Upper Wenatchee watershed, Chelan County, Washington

Proposed by: Bonneville Power Administration (BPA) and the Yakama Nation

Description of the Proposed Action: BPA is funding ongoing studies, research, and artificial production of coho salmon in the Wenatchee and Methow river basins. BPA analyzed environmental impacts of these activities in the Mid-Columbia Coho Reintroduction Feasibility Project Final EA, completed in April 1999 (DOE/EA-1282). Supplemental Analyses (DOE/EA-1282/SA-01 and -02) were prepared in April 2001 to analyze effects of additional activities proposed for the project, and in October 2001 for the Peshastin Incubation Facility. In March 2002 BPA categorically excluded dredging behind Dam 5 at the Leavenworth Fish Hatchery in connection with the project.

The purpose of this third Supplement Analysis is to determine if BPA needs to prepare a supplement to the 1999 Final EA for the proposed additional facilities for acclimating coho smolts. The new sites are needed because of the evolving nature of this feasibility project. Detailed information about these proposed facilities is contained in the attachment to this Supplement Analysis.

Specific facilities and activities proposed are described below.

- Leavenworth NFH: The project proposes use of and improvements to existing, unused Foster-Lucas ponds at Leavenworth NFH and construction of an improved water delivery system on hatchery grounds. These facilities would partially replace the acclimation pond behind Dam 5, which will not be available after 2003. A 200-foot pipeline would also be installed. Figure 3 of the attached document shows the engineering drawing of the site and specifications for the work.
- Nason Creek subbasin: The project proposes three new acclimation sites in the Nason Creek subbasin. These sites will help acclimate the remainder of the coho smolts that are programmed for the Wenatchee basin. These sites (shown in Figure 4 of the attached document), and the developments required, are:
 - Coulter Creek: Installation of an outlet pipe through a beaver dam, and seasonal installation and removal of nets across a beaver pond located on

- privately owned land, to allow acclimation and release of up to 100,000 coho smolts.
- Whitepine Beaver Pond: Seasonal installation and removal of nets across a beaver pond on U.S. Forest Service land, and clearing and graveling an overgrown logging road to provide vehicle access to a footpath, which would then allow access to the pond. From 50,000 to 100,000 smolts would be acclimated and released from this site.
 - Mahar Creek Pond: Seasonal installation and removal of nets across an existing pond on privately owned land. From 50,000 to 100,000 smolts would be acclimated and released from this site.
 - Little Wenatchee (Two Rivers): Within the previously evaluated area at an existing gravel pit (USDOE/BPA 1999a), the project proposes to use an existing discharge channel as a coho acclimation pond. Use of this channel requires:
 - an 80-foot buried pipe to circulate water from an artificial lake to the existing discharge channel (proposed acclimation channel) and back to the lake;
 - a screen across the exit culvert from the proposed acclimation channel; and
 - graveling an existing access road where needed to allow all-season access.
 - Chumstick Creek: The project proposes a direct stream release of smolts, instead of acclimation as discussed in DOE/BPA 2001b.

Analysis: Section 5 of the attachment to this Supplement Analysis details the analysis of the effects of these actions.

Findings: This Supplement Analysis finds 1) that the proposed actions are substantially consistent with the Mid-Columbia Coho Reintroduction Feasibility Project Final EA (DOE/EA-1282) and FONSI, and, 2) that there are no new circumstances or information relevant to environmental concerns and bearing on the proposed actions or their impacts. Therefore, no further NEPA documentation is required.

/s/ Nancy H. Weintraub 11-18-2002
 Nancy H. Weintraub
 Environmental Specialist

CONCUR:

/s/ James Kehoe for
 Thomas C. McKinney
 NEPA Compliance Officer

DATE: 11-18-2002

cc:
 Mr. T. Scribner, Yakama Nation

**MID-COLUMBIA COHO REINTRODUCTION FEASIBILITY
PROJECT
SUPPLEMENT ANALYSIS**

NEW ACCLIMATION SITES

DOE/EA 1282 SA-03

Bonneville Power Administration

October 2002

1. Introduction

The Bonneville Power Administration (BPA) is funding ongoing studies and artificial production of coho salmon (*Oncorhynchus kisutch*) in the Wenatchee and Methow river basins, in the state of Washington. The purpose is to determine the feasibility of reintroducing self-sustaining coho populations in the mid-Columbia region. The work is being conducted primarily by the Yakama Nation (YN), with significant assistance from other state, federal, and public utility participants.¹

BPA analyzed environmental impacts of the research project in the Mid-Columbia Coho Reintroduction Feasibility Project Final Environmental Assessment (EA), completed in April 1999 (USDOE/BPA 1999a). Supplement Analyses were prepared in April and October 2001 to analyze effects of additional activities proposed for the project (USDOE/BPA 2001b and USDOE/BPA 2001c). The purpose of this Supplement Analysis is to determine if a supplemental EA is needed to analyze effects of development of additional acclimation facilities that would enable the research to continue.

2. NEPA Analysis to Date

In spring of 1998, BPA determined that acclimation and release of coho smolts for research purposes at four sites in the Methow basin was categorically excluded from NEPA analysis. A comprehensive research program was proposed by fall of 1998 (YIN 1998). At that time, the Mid-Columbia Coho Reintroduction Feasibility Project EA (USDOE/BPA 1999a) analyzed impacts of research to determine the feasibility of reintroducing naturally reproducing coho into the Methow and Wenatchee river basins, from which they have been extirpated. The EA focused on the impacts of construction of coho acclimation facilities, of coho smolt releases, of monitoring their survival and interactions with other species, and of operation and modification of existing production facilities needed to conduct the research. Effects of that plan on species listed under the Endangered Species Act also were analyzed in Biological Assessments (BAs) submitted to U.S. Fish and Wildlife Service (USFWS) and to National Marine Fisheries Service (NMFS). The project was further refined in the Hatchery and Genetics Management Plan (HGMP) (YN et al. 1999), required by NMFS in its Biological Opinion. (The HGMP is in the process of being updated, in consultation with project participants.) In April 2001, BPA prepared a Supplement Analysis to evaluate additional research activities, temporary incubation and rearing facilities at the Two Rivers acclimation site, and potential additional acclimation sites not evaluated in the EA (USDOE/BPA 2001b). In an October 2001 Supplement Analysis, BPA analyzed the effects of using an existing building near Peshastin, Washington for a temporary site to incubate coho eggs for the program (USDOE/BPA 2001c). As well, in March 2002, BPA categorically excluded the dredging of an existing pond behind Dam 5 at Leavenworth National Fish Hatchery to improve its effectiveness as an acclimation site

¹ Participants include BPA, YN, Washington Department of Fish and Wildlife (WDFW), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Chelan County Public Utility District, U.S. Forest Service (USFS), and others.

The research that is the subject of all these documents is intended to help decision-makers determine if naturally reproducing coho can be successfully reintroduced in these basins without endangering the survival of other valued and at-risk populations of fish, such as spring chinook. By approximately 2004, project participants hope to have adequate information on the potential for successful reintroduction of coho and their effects on other species to begin an in-depth analysis of whether and how to implement a full-scale reintroduction effort. Such an analysis would likely include, among other regional and regulatory processes, additional review and documentation under NEPA.

3. Description of the Proposed Action

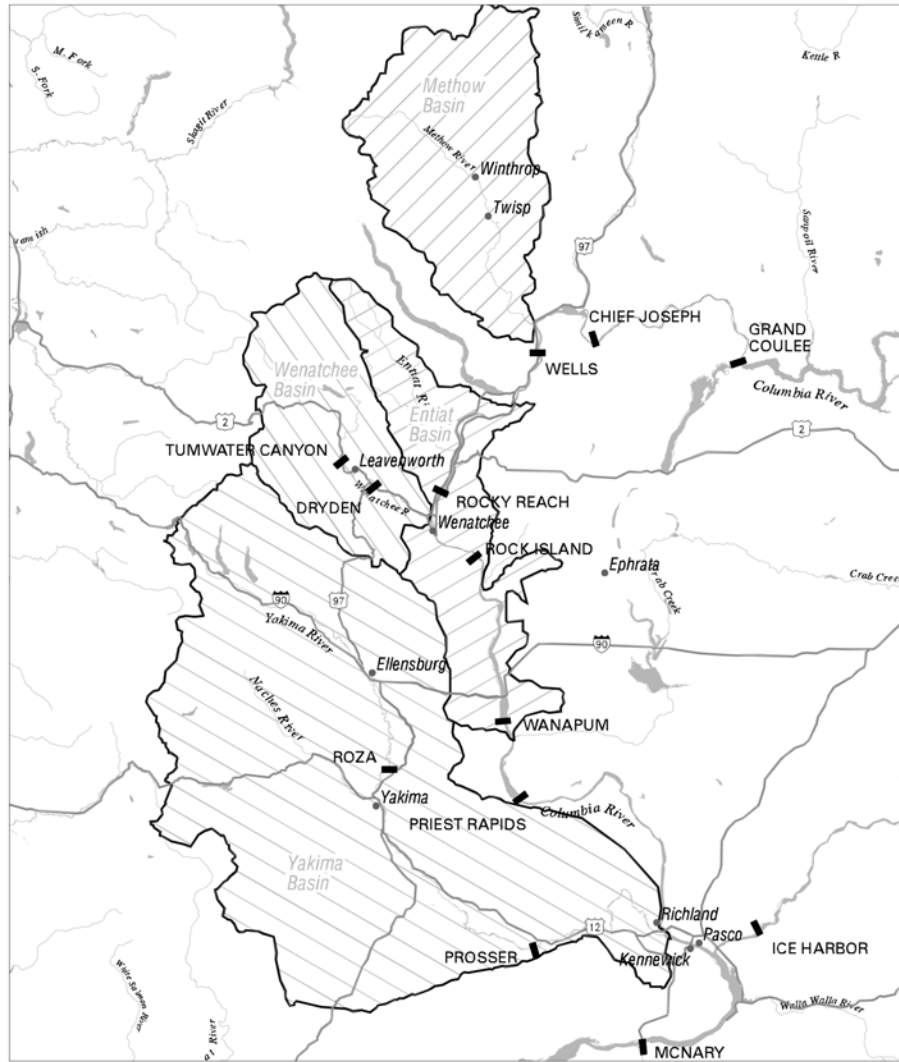
Figure 1 shows the project location within the mid-Columbia region. Project activities currently are focused in the Wenatchee and Methow river basins, although some work has been or will be done in the Yakima and Entiat basins. New sites proposed in this Supplement Analysis are all in the Wenatchee basin.

In order to determine if reintroduction of coho is feasible in these basins, the project collects broodstock; incubates eggs and rears fry at existing hatcheries; acclimates and releases smolts; and studies the natural production, ecological interactions, long-term fitness, and culturing/genetics of coho salmon. Because it is a feasibility study, the project must rely on existing or temporary facilities. Most existing facilities are programmed for other species as their first priority. As a result, when needs change in the priority program, the coho feasibility project often must find another site. Since the coho program's inception in 1996, sites for most activities have changed—in a few cases, several times. Until feasibility has been demonstrated and a long-term program is approved, sites likely will continue to change.

In addition, research studies must change to adapt to the findings so far and to attempt to answer additional questions raised. These revised or new studies often require facilities in new areas of a basin, or in a new watershed.

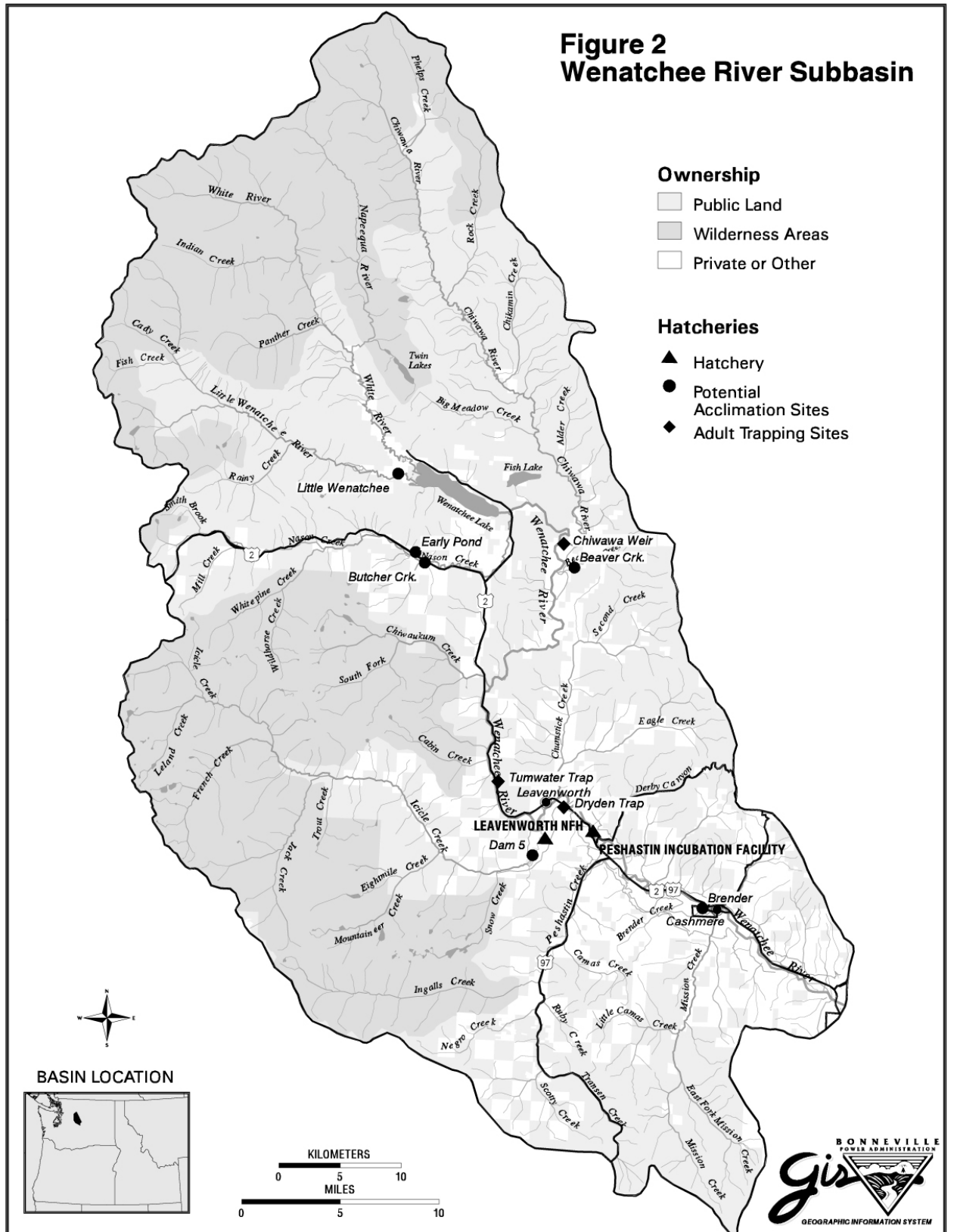
Figure 2 shows locations of program facilities in the Wenatchee basin that have been analyzed in other NEPA documents. Since the previous Supplement Analyses were prepared, project staff have identified additional acclimation facilities needed in the Wenatchee basin to ensure that the research activities can be carried out successfully. New or upgraded facilities are proposed at Leavenworth NFH and at three sites in the Nason Creek subbasin. In addition, changes are proposed at a previously evaluated site on the Little Wenatchee River (Two Rivers), and to release methods in Chumstick Creek.

FIGURE 1 MID - COLUMBIA COHO SALMON STUDY - LOCATION MAP



<p>KILOMETERS</p> <p>0 10 20 30</p> <p>MILES</p> <p>0 10 20 30</p>		Methow Basin	Highway
		Wenatchee Basin	Major Dam
		Yakima Basin	
		Entiat Basin	

Basin Locations



Specific facilities and activities proposed are described below.

- Leavenworth NFH: The project proposes use of and improvements to existing, unused Foster-Lucas ponds at Leavenworth NFH and construction of an improved water delivery system on hatchery grounds, including a 200-foot pipeline. These facilities would partially replace the acclimation pond behind Dam 5, which will not be available after 2003. Figure 3 shows the engineering drawing of the site and specifications for the work.
- Nason Creek subbasin: The project proposes three new acclimation sites in the Nason Creek subbasin. These sites will help acclimate the remainder of the coho smolts that are programmed for the Wenatchee basin. These sites (shown in Figure 4), and the developments required, are:
 - Coulter Creek: Installation of an outlet pipe through a beaver dam, and seasonal installation and removal of nets across a beaver pond located on privately owned land, to allow acclimation and release of up to 100,000 coho smolts.
 - Whitepine Beaver Pond: Seasonal installation and removal of nets across a beaver pond on U.S. Forest Service land, and clearing and graveling an overgrown logging road to provide vehicle access to a footpath, which would then allow access to the pond. From 50,000 to 100,000 smolts would be acclimated and released from this site.
 - Mahar Creek Pond: Seasonal installation and removal of nets across an existing pond on privately owned land. From 50,000 to 100,000 smolts would be acclimated and released from this site.
- Little Wenatchee (Two Rivers): Within the previously evaluated area at an existing gravel pit (USDOE/BPA 1999a), the project proposes to use an existing discharge channel as a coho acclimation pond. Use of this channel requires:
 - an 80-foot buried pipe to circulate water from an artificial lake to the existing discharge channel (proposed acclimation channel) and back to the lake;
 - a screen across the exit culvert from the proposed acclimation channel; and
 - gravelling an existing access road where needed to allow all-season access.
- Chumstick Creek: The project proposes a direct stream release of smolts, instead of acclimation as discussed in DOE/BPA 2001b.

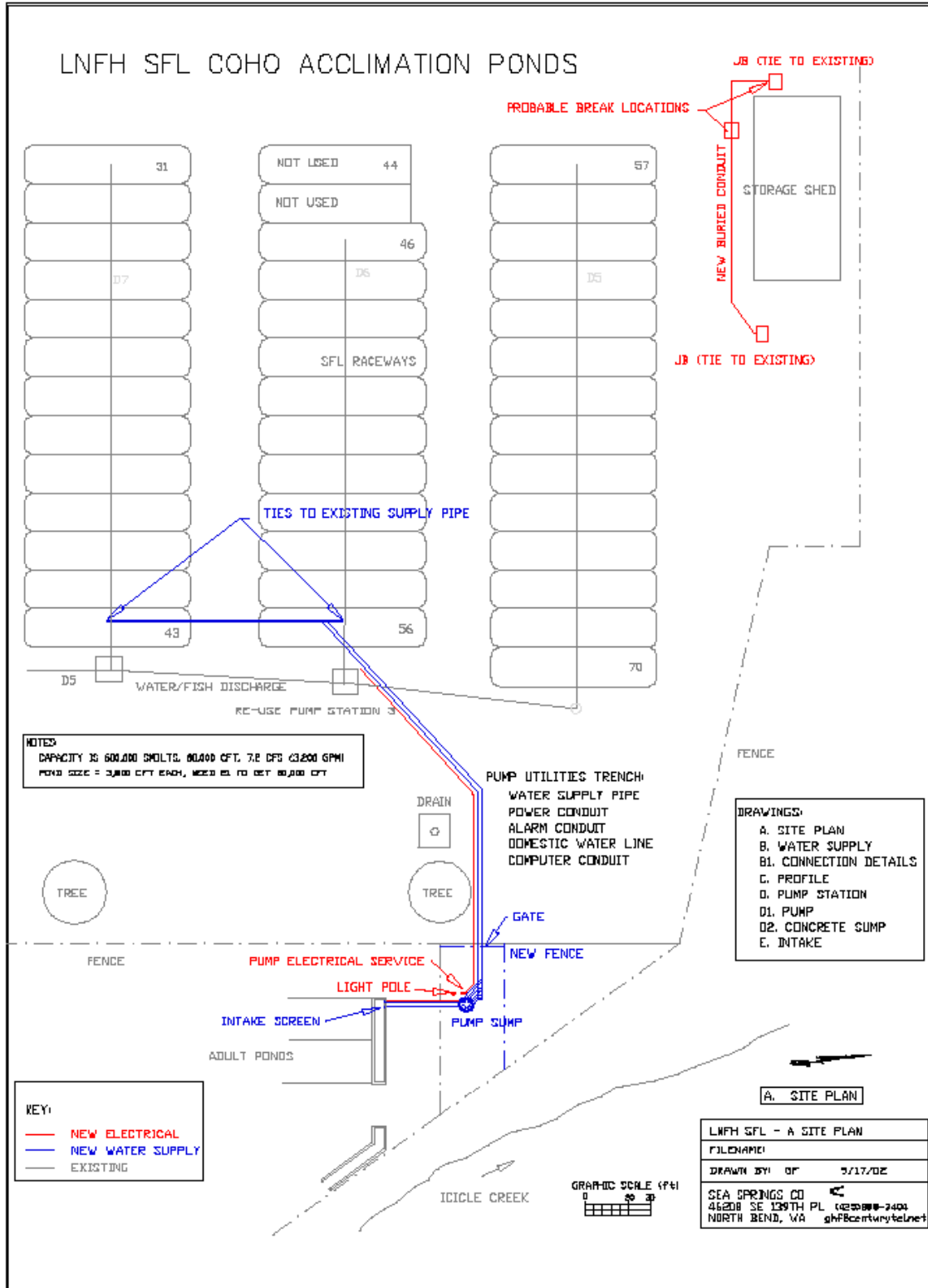


Figure 3. Foster Lucas Ponds, Leavenworth National Fish Hatchery

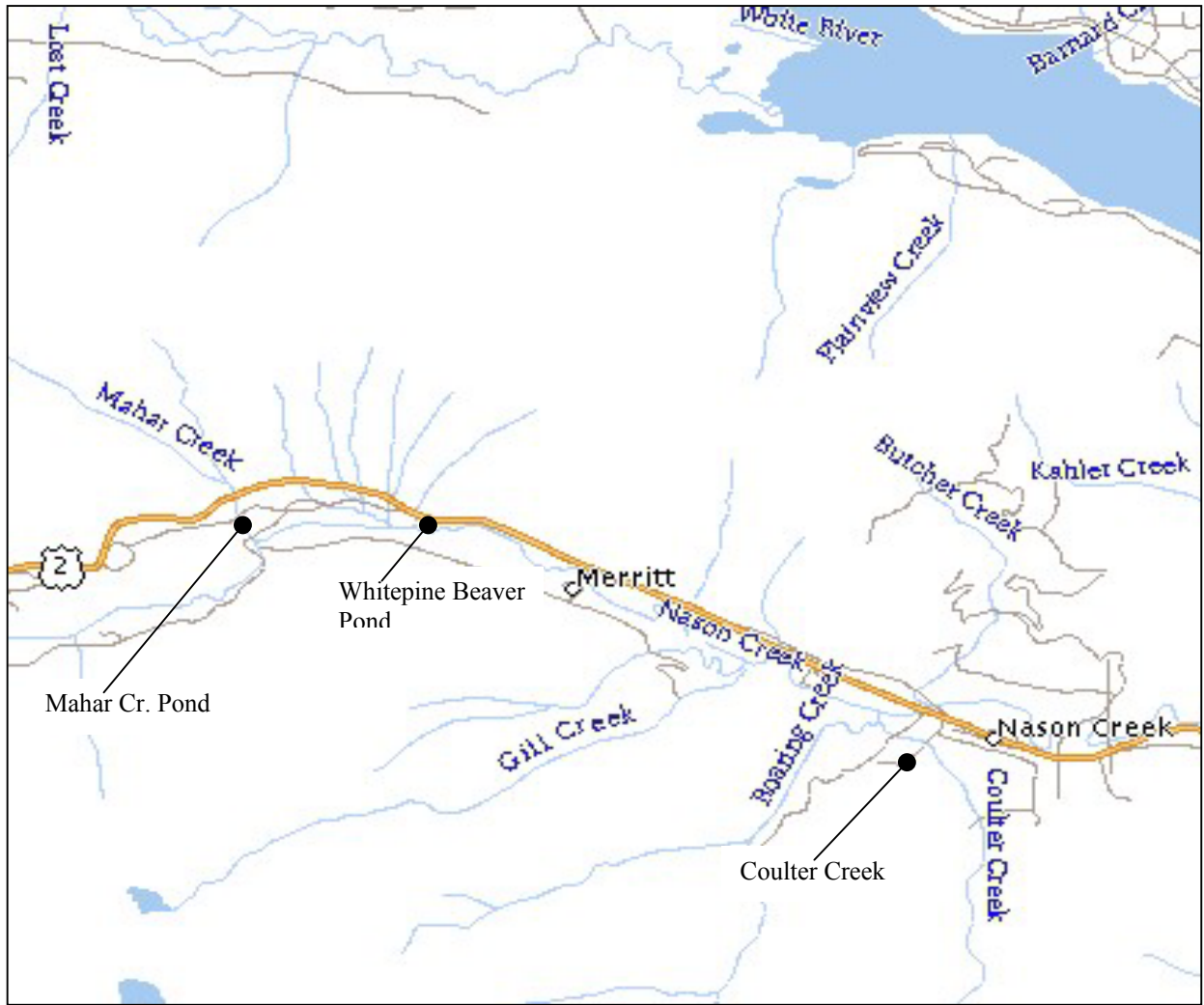


Figure 4. Proposed Coho Acclimation Sites in Nason Creek Watershed
 Source: Meridian 2002

4. New Activities and Circumstances Since Earlier NEPA Documents

In spring 2002, the property owner of the Dam 5 coho acclimation site near Leavenworth NFH notified the YN that she no longer wishes to allow coho to be acclimated there. She believes it will interfere with the goal of restoring the Icicle Creek side channel to its natural state, a plan for which was subject of a U.S. Fish and Wildlife Service Environmental Impact Statement (USFWS 2002) and Record of Decision. Thus, the Dam 5 site will be unavailable after 2003. This site was used to acclimate the majority of coho smolts released into the Wenatchee basin (751,500 of the 1 million released in 2002). BPA and YN propose to improve the unused small Foster-Lucas ponds at the hatchery, which would allow acclimation of approximately 600,000 coho smolts, and to use additional sites off-station for the remainder of the 1 million smolts programmed for release in the Wenatchee basin.

Release of more smolts in natural sites away from the hatchery also would provide more opportunities for the feasibility program to study survival, adult returns, and reproductive success of coho reared in natural conditions. Studies are outlined in the updated version of the Hatchery and Genetics Management Plan for this program (YN et al. 2002 [in draft]).

As well, the original locations proposed for acclimation ponds on the Little Wenatchee (Two Rivers) and in the Chumstick Creek subbasin were found to be unsuitable. At Two Rivers, the project proposes to use an existing channel within the previously evaluated area. In the Chumstick, an acceptable substitute acclimation site has not been found. Releases originally were proposed in the Chumstick to test the success of naturally reproducing coho in a subbasin that does not contain listed species, so direct stream releases in Chumstick Creek are proposed until a suitable acclimation site is found.

5. Effects of Project Activities Not Previously Evaluated

5.1 Leavenworth NFH (Foster-Lucas Ponds)

5.1.1 Site Conditions

Leavenworth NFH is located on Icicle Creek, near Leavenworth, Washington. Existing concrete ponds on the hatchery grounds (small Foster-Lucas ponds) have been unused for a number of years. Twenty-one of the ponds will be reconditioned and a new water supply with electrical service will be constructed to provide water to them. All work would be done on already developed hatchery grounds. Work is scheduled to begin in March or April 2003 and completed by summer. Up to 600,000 coho smolts would be acclimated in the ponds beginning in spring 2004.

Table 1 shows listed species in the vicinity of the hatchery.

Table 1. ESA-Listed Species Within 5 Miles of Leavenworth NFH

Species	Leavenworth NFH area
Spring chinook (E)**	Rearing/migration w/in 4 mi.
Steelhead (E)	Migration habitat w/in 1 mi.; spawning in Icicle Creek*
Bull trout (T)	Migration w/in 1 mi. in Icicle Creek
Bald eagle (T)	Winter roost w/in 1-2 mi.
Northern spotted owl (T)	None
N. spotted owl Critical Habitat Unit	2 CHUs w/in 1-3 mi.
Gray wolf (E)	None
Grizzly bear (T)	2-3 mi.
Canada lynx (T)	None
Wenatchee checker-mallow (E)	1-2 mi.
Ute ladies'-tresses (T)	None

Source: WDFW 2000a and WDFW 2000b unless otherwise noted.

* Brian Cates, USFWS/Leavenworth, personal communication.

** E = "Endangered," T = "Threatened," as defined in Endangered Species Act (ESA).

5.1.2 Effects

The primary effect of the proposed work would be noise and dust from the excavation work for the 200-foot pipeline. A jackhammer would be required to excavate the existing asphalt, and would probably be in use for approximately a week. The ground that would be excavated has already been disturbed for construction of the hatchery facilities, and no surface water is close enough to the work site to be affected. Hatchery personnel could be inconvenienced for the construction period, expected to last approximately one month.

Noise from the excavating equipment could disturb wintering **bald eagles** for the work period, if work is done while eagles are still in the area, but is not expected to drive them from the area permanently, given the existing level of traffic and development.

The proposed project would not affect **grizzly bears** or **spotted owls**, as the site is in a previously developed area.

Effects of releasing coho smolts into Icicle Creek, including effects on listed species, were analyzed in previous NEPA documents and Biological Assessments and would not change with this proposal.

Because no natural habitat is in the vicinity of the proposed work and because all work would be done on a previously developed site, no special conservation measures are required.

5.2 Nason Creek Acclimation Ponds

The three proposed new sites in the Nason Creek subbasin—Coulter Creek, Whitepine Beaver Pond, and Mahar Creek Pond—are all within approximately 3 miles of each other, on Highway 2, about 17-20 miles northwest of Leavenworth.

5.2.1 Site Conditions

All the sites are in existing ponds, on tributary streams to Nason Creek. Two are natural beaver ponds (one of which is on U.S. Forest Service land), and one is a constructed pond on privately owned property. Site-specific conditions at each of the three ponds are described in section 5.2.3 below.

Table 2 shows species in the basin that are listed under the Endangered Species Act and whether they have been found near Nason Creek acclimation sites.

Table 2. ESA-Listed Species Near Nason Creek Acclimation Sites

Species	Type of Use
Spring chinook (E)**	Spawning/rearing/migration areas w/in 1mi.
Steelhead (E)	Spawning/rearing/migration areas w/in 1mi.
Bull trout (T)	Migration habitat
Bald eagle (T)	None
Northern spotted owl (T)	None
N. spotted owl Critical Habitat Unit	None
Gray wolf (E)	Unconfirmed sighting in vicinity in 1988***
Grizzly bear (T)	None
Canada lynx (T)	None
Wenatchee checker-mallow (E)	None
Ute ladies'-tresses (T)	Potential habitat at Coulter Cr.****

* Source unless otherwise noted: WDFW 2000a and WDFW 2000b.

** E = “Endangered,” T = “Threatened,” as defined in Endangered Species Act (ESA).

*** WDFW 1998b.

**** Meridian 2002

5.2.2 General Effects

Effects of coho smolt releases on listed fish species have been evaluated in other NEPA documents and Biological Assessments prepared for NMFS and USFWS (USDOE/BPA 1999a, 1999b, 2001a, 2001b, 2001c). Conclusions were that coho smolts migrate rapidly when volitionally released (as they would be from acclimation sites on Nason Creek), and thus constitute a low predation risk to spring chinook fry in the area. Studies done for this project have supported this conclusion (Murdoch and Dunnigan 2001; Murdoch and LaRue 2002).

ESA-listed steelhead are found in subbasin creeks, but spawning and rearing steelhead are not expected to be preyed on by coho smolts because steelhead emerge from gravel after coho have migrated downstream (USDOE/BPA 1999a).

Bull trout spawn in the upper tributaries, so by the time they are in the area of the coho acclimation sites, they are too large to be prey for coho (USDOE/BPA 1999a).

The risk that remains unknown is that of competition with listed fish from the progeny of coho that have returned to the Wenatchee basin and spawned naturally. If natural production of coho increases, there is potential for competition for food and space with spring chinook and steelhead, although the evidence is inconclusive. A recent study of the effect of coho smolt releases on abundance of steelhead/rainbow and cutthroat trout in the Yakima basin indicates that coho releases do not affect abundance, although the researcher acknowledged the study’s limitations due to its lack of statistical power (Dunnigan 1999). So far, naturally produced coho in Nason Creek have been too few to pose a risk to any species—only three coho redds were found in Nason Creek in 2001

(Murdoch and LaRue 2002). The project participants, including the Technical Work Group, recognize that some risk must be imposed in order to study the effect of competition among the species. They review project study results annually and agree on smolt release numbers that will minimize risk to listed fish while also meeting project study objectives. Studies of the ecological impact of the progeny of naturally reproducing hatchery coho adults are part of the feasibility research.

Except for the gray wolf, no listed wildlife species have been sighted within a mile of Nason Creek sites. The one sighting of a wolf reported (WDFW 1998b) was unconfirmed, and the Wenatchee National Forest reports that there are no known resident populations on the forest (USFS 1990). Though the beaver in this area are prey for wolves, the sites are close to U.S. Highway 2 and to homes. Because wolves normally occupy remote areas, and because no dens are known in the area, project activities would not adversely affect the gray wolf.

Because there will be no excavation at any of the sites, and limited clearing of an existing road at only one site, no effects on cultural resources or water quality are expected.

All three sites probably are in 100-year floodplains. However, the limited and temporary project activities will not decrease the capacity of the floodplain to hold floodwaters, destabilize or disturb soils in the floodplain, or lead to increased erosion or sediment load downstream.

5.2.3 Site-Specific Effects

Coulter Creek: The Coulter Creek site is a beaver pond located on private land at about 2,200 feet elevation, about 500 feet upstream of Coulter Creek's confluence with Nason Creek (Figure 5). The creek drains from and into an extensive wetland complex mapped in the National Wetland Inventory as palustrine scrub-shrub (PSS). Plant species at the site include grasses, sedges, forbs, and rushes (Meridian 2002).

Project activity at this site would be limited to installation of an outlet pipe through the beaver dam, seasonal installation and removal of nets across the pond, and access for project staff to plant and feed the fish. The driveway to the house at the site would provide adequate access to the pond, so no clearing would be required.

A survey conducted in late summer 2002 tentatively identified seven plants growing near the transition from sedge/rush to grass-dominated areas as hooded ladies'-tresses (*Spiranthes romanzoffiana*), but the plants were past flowering and the identification could not be confirmed. Their characteristics are fairly similar to those of Ute ladies'-tresses (*Spiranthes diluvialis*), which often occurs with the more common species of *Spiranthes* (F. Caplow, WNHP, pers. comm., September 13, 2002 [in] Meridian 2002). Should the listed species occur, the timing of project activity at the site (February, March and April) would minimize the risk of impacts, since snow is typically still on the ground then and the plants would be dormant (Meridian 2002).



Figure 5. Coulter Creek pond

(Source: Meridian 2002)

To help ensure there would be no impacts, project access and activities will be limited to the portion of the site that is dominated by upland forbs and grasses in the driveway and lawn, and reed canarygrass along the pond margin. This area will be flagged so that project staff do not inadvertently trample potential habitat for Ute ladies'-tresses. With this measure in place, no additional plant surveys would be required.

Whitepine Beaver Pond: This site is on U.S. Forest Service land (Wenatchee National Forest). The pond (Figure 6) is on an unnamed tributary to Nason Creek at about 2,240 feet elevation.

The beaver pond at this site is shown on National Wetland Inventory maps as part of an extensive PSS and palustrine forested (PFO) wetland complex. A site visit in late summer 2002 verified this classification, as well as inclusions of open water (OW) and palustrine emergent marsh (PEM) wetland (Meridian 2002). Riparian vegetation around the pond is a mix of cottonwood, willow, dogwood, and spiraea, with reed canarygrass in standing water along the pond margins. Several other hydrophytic species, such as sedges, rushes, field mint, and American speedwell are also present around the pond margin, but not where workers would access the pond (Meridian 2002). Due to the dense cover of reed canarygrass (considered a nuisance species) and adjacent shrub thicket, no suitable habitat for Wenatchee checkermallow or Ute ladies'-tresses exists (Meridian 2002).



Figure 6. Whitepine Beaver Pond

(Source: Meridian 2002)

About 270 feet of an overgrown logging road would be cleared and graveled to provide vehicle access. A footpath approximately 360 feet long would be cleared to provide access from the end of the road to the pond. Vegetation that would be cleared for the road and path consists of Douglas fir saplings and seedlings, mountain alder, vine maple, thimbleberry, stinging nettle, and fireweed (Meridian 2002). It would not be necessary to remove any mature trees to improve the access at this site. Work involving wetlands would be limited to disturbance of reed canarygrass during installation and removal of the inlet and outlet nets, and when planting and feeding coho smolts; thus, no adverse impacts on wetlands would be expected (Meridian 2002).

A U.S. Forest Service representative visited the site and informed project staff that the proposed work does not raise environmental concerns. The Forest Service is in process of preparing documentation to that effect (T. Scribner, pers. comm., September 30, 2002).

Mahar Creek Pond: The site is on private land, where the property owner is in the process of building a house. A pond exists on the site in an overflow channel of Mahar Creek (Figure 7). The pond, about 5,000 square feet, is on an unnamed tributary to Nason Creek, at about 2,200 feet elevation. The lower banks are bare soil. Patches of thimbleberry and scattered weedy forbs and grasses grow in the surrounding soils, which have been cleared for construction (Meridian 2002). Vegetation growing along the stream channel both upstream and downstream of the pond is dominated by western red cedar, which also was likely the dominant species along the excavated stream reach. Western red cedar forest does not provide suitable growing conditions for either Wenatchee checkermallow or Ute ladies'-tresses, so it is not likely that either species ever occurred there.

Work would be limited to seasonal installation and removal of nets across the pond and access to staff for planting and feeding the fish. Because the site is already disturbed, no adverse effects are expected from the limited project activity proposed at this site.



Figure 7. Mahar Creek Pond

Source: Meridian 2002

5.3 Two Rivers Acclimation Channel

5.3.1 Site Conditions

This site, on the Little Wenatchee River near where it enters Lake Wenatchee, is on the property of an operating sand and gravel mine (Two Rivers Sand and Gravel) (SW 1/4 of Section 15, T27N, R16E). The area was first evaluated for an acclimation pond in USDOE/BPA 1999a, and for temporary incubation facilities in USDOE/BPA 2001b. Due to concerns about potential soil contamination, the location of proposed facilities within the previously evaluated area was changed.

Figure 8 shows the gravel mine and the river, as well as general site conditions. The narrow channel proposed for use as an acclimation channel is out of the picture, although a corner of the excavated lake that would be used as its water source appears in the upper right corner. Figure 9 is a drawing of the acclimation channel.

As the photo shows, most of the area has been previously disturbed. An assessment of wetlands and rare plants done at the site in 2001 found that a portion of the property is shown on National Wetland Inventory maps as man-made open water wetlands. This assessment also determined that the site includes a narrow band of palustrine scrub-shrub

(PSS) wetland along the margins of the excavated lake and discharge channel, but identified no suitable habitat for Wenatchee checker-mallow or Ute ladies'-tresses (Harza 2001). Other ESA-listed species and natural conditions are the same as described in USDOE/BPA 2001b.



Figure 8. Aerial View of Two Rivers Site, Looking Southeast

5.3.2 Effects

The effects of a new acclimation pond at the gravel pit were evaluated in the original EA on this project (USDOE/BPA 1999a). In 2001, effects of additional facilities at that site were evaluated in a Supplement Analysis (USDOE/BPA 2001b). The current proposal to use the existing discharge channel for acclimation modifies the proposed action and its location within the site, but the existing environment and effects remain essentially the same or are less than those described in the EA and Supplement Analysis.

For example, in the EA and the 2001 Supplement Analysis, work was expected to be required on the discharge channel. Since that document was written, Two Rivers Sand and Gravel has lined the channel with concrete in the portion that is inside the boundaries of the gravel mine disturbed area. Outside the disturbed area, native vegetation has populated the banks. Now no clearing of the discharge channel is required, so wetlands will not be disturbed and no erosion will occur.

Placement of a screen over the outlet to the existing acclimation channel would not increase erosion, as the screen is several hundred feet from the river.

Excavation for the water pipeline would be in the previously disturbed area. Silt that is eroded from the excavation might enter the excavated lake, but not the Little Wenatchee River, so erosion control measures would be unnecessary.

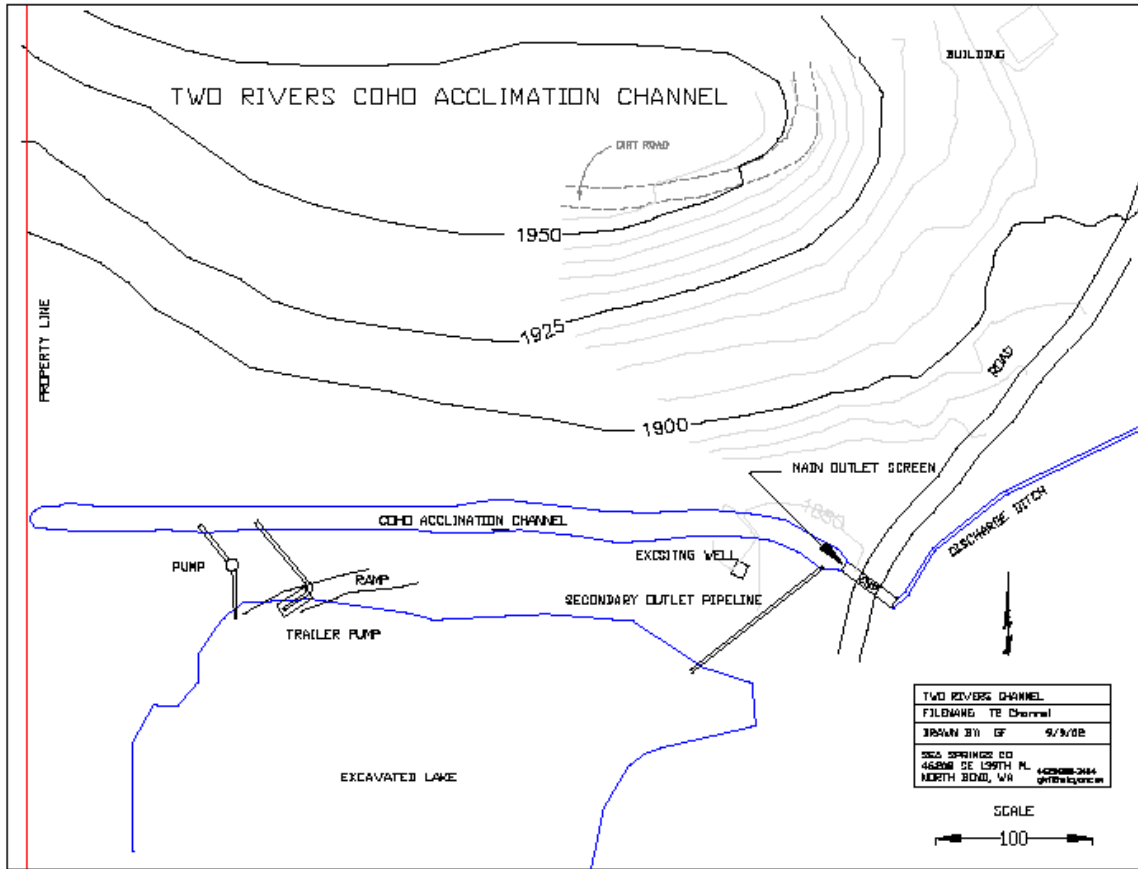


Figure 9. Detail of Acclimation Channel at Two Rivers

Effects on fish and wildlife species and local residents would be similar to those described in the EA and Supplement Analysis. Because the preliminary survey in 2001 found no suitable habitat for listed plant species, no further surveys are required; and because the work area has already been significantly disturbed, a cultural resources survey is not required.

Washington Department of Ecology has questioned whether use of the Two Rivers acclimation pond would increase the phosphorus content of the Little Wenatchee River, and of Lake Wenatchee downstream, to unacceptable levels. Excessive amounts of phosphorus, a nutrient which can occur naturally, can cause algae and other aquatic plants to grow in lakes and streams, depriving aquatic life of vital oxygen (WDOE website on 303(d) List of Impaired and Threatened Water Bodies). BPA has studied records of phosphorus measurements in the lake and calculated that the amount of phosphorus produced by acclimating up to 200,000 fish for six weeks upstream of the lake would add only a tiny fraction to the amount of phosphorus already in the water column.

The channel's location within the Two Rivers property avoids the potential contamination identified in the Supplement Analysis. Graveling the existing road and installation of the other required equipment and facilities will not affect the environment of this already disturbed area.

5.4 Chumstick Creek direct stream releases

Streams in the Chumstick Creek subbasin are tributaries to the Wenatchee River. The Technical Work Group suggested that the project use acclimation sites in the Chumstick subbasin to avoid the potential for impacts to listed species at some sites proposed in the EA. Two potential sites were evaluated in USDOE/BPA 2001b but have not been usable for various reasons. Until other suitable sites can be found, the project proposes to transport hatchery coho smolts and release them directly into Chumstick Creek.

ESA-listed steelhead are found in subbasin creeks, but spawning and rearing steelhead are not expected to be preyed on by coho smolts because steelhead emerge from gravel after coho have migrated downstream. Coho smolts directly released will be ready to migrate, as determined by hatchery staff, so are not expected to remain in the area to pose a predation risk to other species. Other potential ecological interactions would be similar to those described for Nason Creek sites.

Other species and resources would be unaffected by direct stream releases of coho smolts in the Chumstick subbasin.

5.5 Effects on Habitat

The proposed work at Leavenworth NFH would not affect habitat for any species.

The limited activities proposed at the three Nason Creek acclimation sites will not temporarily or permanently modify habitat from what has already been done at those sites. Flagging the work area at Coulter Creek will protect habitat for Ute ladies'-tresses that might exist outside the work area.

Habitat at the Little Wenatchee (Two Rivers) site has already been severely disturbed. The proposed work would not adversely affect existing natural habitat in the area.

5.6 Conservation Measures

Conservation measures to reduce or eliminate adverse impacts and reduce risk to the resource would be required only at Coulter Creek pond. There, project access and activities will be limited to areas of the driveway and lawn dominated by upland forbs and grasses, and to areas of reed canarygrass along the pond margin. This area will be flagged so that project staff do not inadvertently trample potential habitat for Ute ladies'-tresses.

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