

Yakima-Klickitat Fisheries Project
Coho Reintroduction Feasibility Study Phase II
Project Description and Environmental Analysis White Paper

Bonneville Power Administration

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1. Introduction

The Bonneville Power Administration (BPA) is funding a project known as the Yakima/Klickitat Fisheries Project that involves ongoing studies, research, and artificial production of several salmonid species in the Yakima and Klickitat river basins. The project is co-managed by the Yakama Nation (YN) and the Washington Department of Fish and Wildlife (WDFW). BPA analyzed environmental impacts of research and supplementation projects in the Yakima River Basin in an environmental impact statement (EIS) completed in 1996 (USDOE/BPA 1996). The purpose of this current analysis is to determine if a supplemental EIS is needed for additional feasibility studies on coho reintroduction proposed as part of that project over the next two-to-three years.

2. NEPA Analysis to Date

The Yakima Fisheries Project Final EIS (YFP EIS) (DOE/EIS-0169, BPA 1996) analyzed impacts of undertaking fishery research and mitigation in the Yakima River Basin. The EIS focused on the impacts of construction, operation and maintenance of anadromous fish production facilities needed to conduct research designed to increase knowledge of supplementation techniques. Spring chinook were the priority species analyzed in the EIS; however, coho feasibility studies, potential harvest benefits, and predation impacts for returning natural production of coho salmon to the Yakima River Basin were also evaluated. Subsequent supplement analyses (SAs) have evaluated the potential impacts of additional activities relating to the Yakima Fisheries Project (DOE/EIS-0169-SA-01 through SA-12).

Subsequent to the YFP EIS, BPA completed a Fish and Wildlife Implementation Plan EIS (FWIP EIS) (DOE/EIS-0312, BPA 2003) and Record of Decision (ROD) (BPA 2003). The goal of the FWIP EIS was to develop a comprehensive and consistent policy to guide the implementation and funding of BPA's fish and wildlife obligations under existing statutes and policies. In the Record of Decision, BPA adopted the Proposed Action 2002 alternative that characterized the policy direction BPA would take. This alternative focuses on enhancing fish and wildlife habitat, modifying hydroelectric power operations and structures, and reforming hatcheries to both increase populations of listed fish stocks and provide long-term harvest opportunities. The Yakima/Klickitat Fisheries Project and the proposed implementation of additional coho reintroduction feasibility studies are consistent with the Preferred Alternative 2002 described in the FWIP EIS and ROD. The cumulative effects of artificial production programs in the Columbia River Basin are addressed in the FWIP EIS.

3. Description of the Proposed Action

3.1 Background

Historical returns of coho salmon to the Yakima River Basin were estimated to range from 45,000 to 100,000 fish annually, but declined to zero by the early 1980s after decades of overexploitation of fishery, water, and habitat resources. In 1985, the YN began importing coho from lower river hatcheries under the Columbia River Fish Management Plan to acclimate and release in the lower Yakima Basin. In 1996, the YN and WDFW initiated a study, with BPA funding under the Yakima/Klickitat Fisheries Project, to determine the feasibility of re-establishing a naturally-spawning coho population in the Yakima Basin. This study was proposed to be implemented in two steps, each with two phases:

Step 1: Coho Reintroduction Feasibility Studies

- Phase I – Feasibility studies (addressed in Yakima Fisheries Project EIS and previous Supplement Analyses 01-04, 06, 08, and 11).
- Phase II - Study tributary habitat conditions for juvenile survival and adult spawning (addressed in this Supplement Analysis).

Step 2: Final Development and Implementation of the Yakima Coho Master Plan (scheduled for 2010 and beyond)

- Phase I - Review and Approval of Master Plan, complete NEPA process on the Master Plan and final design, and construct facilities.
- Phase II - Full scale program implementation and adaptive management.

Step 1, Phase I of the coho study explored whether successful adaptation and recolonization were feasible when multi-generational, hatchery-reared coho were reintroduced to native habitats (documented in Dunnigan, et al. 2002, and Bosch, et al. 2007). After 10-to-20 years of outplanting, data for adult returns of known natural origin (i.e., returns from parents that spawned in the wild) and returns from hatchery releases were compared. Returning fish of natural origin were significantly larger than those of hatchery origin. The mean egg mass and mean egg size of natural-origin females were greater than those of hatchery-origin females, but the differences were statistically significant for only one of three sample years. Natural-origin adults returned two-to-nine days later and spawned five days later than their hatchery-origin counterparts. Preliminary indices of smolt-to-adult survival for natural-origin fish were 3.5– 17.0 times the survival indices of hatchery-origin fish. The number of returns to the historical spawning habitats in upriver areas generally increased. Spawning surveys demonstrated the existence of robust and sustainable spawning aggregates in various locations in the basin. Hatchery releases from the local brood source (Yakima River returns) had significantly higher smolt-to-smolt survival than releases from out-of-basin (non-Yakima River) hatchery broodstock, but some of these observed differences in survival may be partially attributable to differences in smolt size. Hatchery-origin coho salmon with a legacy of as many as 10-to-30 generations of hatchery influence demonstrated an ability

to reestablish themselves in the Yakima River (i.e, as a naturalized, nonnative population) after as few as three-to-five generations of outplanting in the wild.

Step 1, Phase II of the study is the subject of this analysis. The focus of Phase II is to determine which tributaries have sufficient habitat for coho rearing and spawning. The proposed activities include reintroducing juveniles and adults into select tributaries to monitor and assess the relative rearing and spawning success. Phase II also includes monitoring and assessing the feasibility of a small-scale mobile acclimation unit that could be used to seed individual tributaries with coho, creating self-sustaining populations. This phase would also continue to increase the in-basin broodstock and acclimate coho smolts in ponds in the Naches and upper Yakima basins.

Step 2, Phase I of the study is to develop and obtain approval of a Master Plan, complete environmental analysis of the Master Plan proposal, and begin construction of proposed facilities. Facilities may include two small-scale hatcheries, one in the Naches Basin and one in the Upper Yakima River. These hatcheries would provide an in-basin broodstock source for ongoing outplants, mobile acclimation, and mainstem acclimation. These activities would be the subject of a separate NEPA process, since they would not begin prior to 2010 and are subject to future review and approval through the fish and wildlife program prioritization process.

Step 2, Phase II of the project would consist of ongoing adaptive management and full-scale implementation of the coho program. These activities would be addressed as part of the NEPA process on the Master Plan.

3.2 Project Description

The overall feasibility of full coho reestablishment in the Yakima Basin is still being researched. Step 1, Phase I, is ongoing and has provided much useful information (see results discussion above as documented in Bosch et al. 2007). Radio tracking and redd surveys have identified three major areas of coho spawning. Over 90 percent of the coho redds are located in the mainstem Naches and Yakima rivers, which leaves possible reintroduction efforts exposed to potentially adverse environmental conditions such as bedload movement by early winter high flows, due to their concentrated nature.

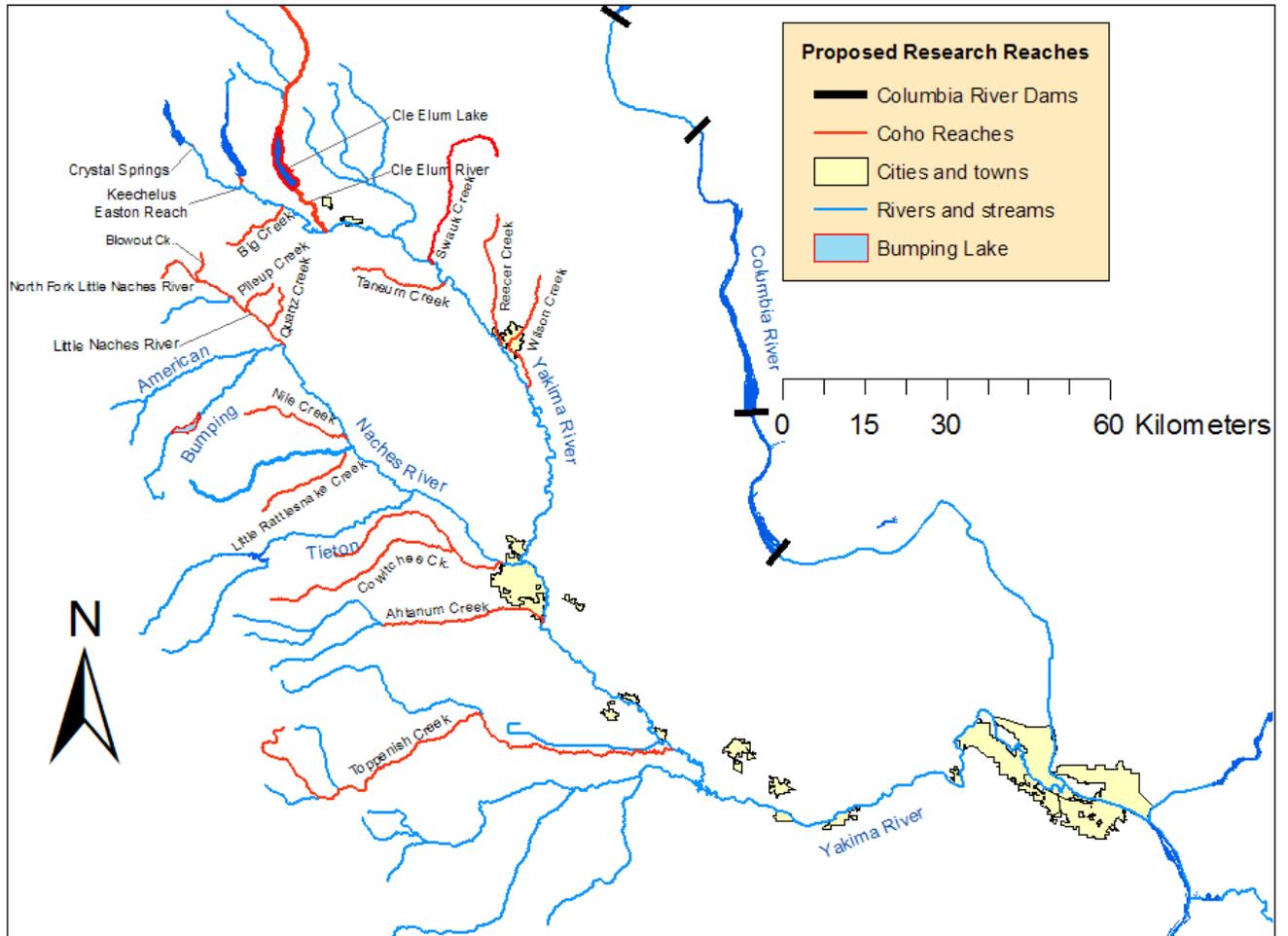
If a fully reestablished, self-sustaining, resilient coho population is to exist, tributaries in the Yakima Basin need to be included in the reintroduction. Therefore, the YKFP managers (the YN and WDFW) propose expanding research into 15 Naches and Yakima River tributaries in Step 1, Phase II. The focus will primarily be on researching and assessing the quality of tributary habitat for juvenile survival and adult spawning. Additionally, small-scale mobile acclimation is being proposed as a new way to help reintroduce coho smolts into the tributaries. Experimental tributaries for coho reintroductions were chosen by the YKFP biologists using three criteria: 1) relatively healthy watershed, 2) ecologically functional stream system, and 3) presumed and known historic use by coho. The identified streams and new activities proposed in each are identified in Table 1, and the stream locations are shown on in Figures 1 and 2.

**Table 1 Existing and Proposed Coho Reintroduction Feasibility Program
(new Phase II proposed activities highlighted in bold type)**

Activity	Location, Numbers, Timing
Hatchery rearing and broodstock development	- Prosser Hatchery: Up to 500,000 smolts reared - Lower Columbia River hatcheries: between 500,000 – 1 million fry/smolts reared Total production not to exceed 1 million fish for release
Acclimated volitional smolt releases from mainstem sites (smolt-smolt survival studies)	900,000 annually, spring volitional release <ul style="list-style-type: none"> • 450,000 Upper Yakima River (Easton (RM 201), Boone (RM 180) , Holmes (RM 160), Brunson (Wilson Creek RM 6.8), and Hundley (RM 191) acclimation ponds) 1,250 of these fish acclimated over winter and released from Easton Lake in the Keechelus Easton Reach • 450,000 Naches River (Stiles RM 9) and Lost Creek (RM 39) acclimation ponds)
Acclimated volitional smolt releases from new tributary sites (smolt-smolt survival studies)	Annually 5-10,000 smolts released in spring from a mobile acclimation unit rotating yearly between the following tributaries: <ul style="list-style-type: none"> • Toppenish Creek • Cowiche Creek • Ahtanum Creek
Cle Elum Dam passage study smolt releases	10-12,000 smolts released from net pens to study downstream passage at dam
Parr releases – scatter plant (over-winter survival studies)	3,000 each site, up to 42,000 total annually, in July¹ - Upper Yakima River tributaries <ul style="list-style-type: none"> • Crystal Springs/Easton-Keechelus Reach • Big Creek • Upper Cle Elum River (above Cle Elum Lake) • Swauk Creek • Reecer Creek • Wilson Creek - Naches River tributaries <ul style="list-style-type: none"> • North Fork Little Naches • Little Naches River • Quartz Creek (Little Naches River tributary) • Upper Bumping River (above Bumping Lake) • Nile Creek • Little Rattlesnake Creek • Cowiche Creek - Mid Yakima River tributaries <ul style="list-style-type: none"> • Ahtanum Creek • Toppenish Creek In addition, 17,000 parr released in Ahtanum Creek from the LaSalle High School rearing project.
Adult releases (egg-fry survival and F2 surrogate studies)	Up to 20 pairs each site (except Taneum Creek), in fall - Upper Yakima tributaries <ul style="list-style-type: none"> • Taneum Creek (120 females and 160 males) • Reecer Creek • Wilson Creek - Naches and Little Naches River tributaries <ul style="list-style-type: none"> • Pile Up Creek • Quartz Creek • Nile Creek

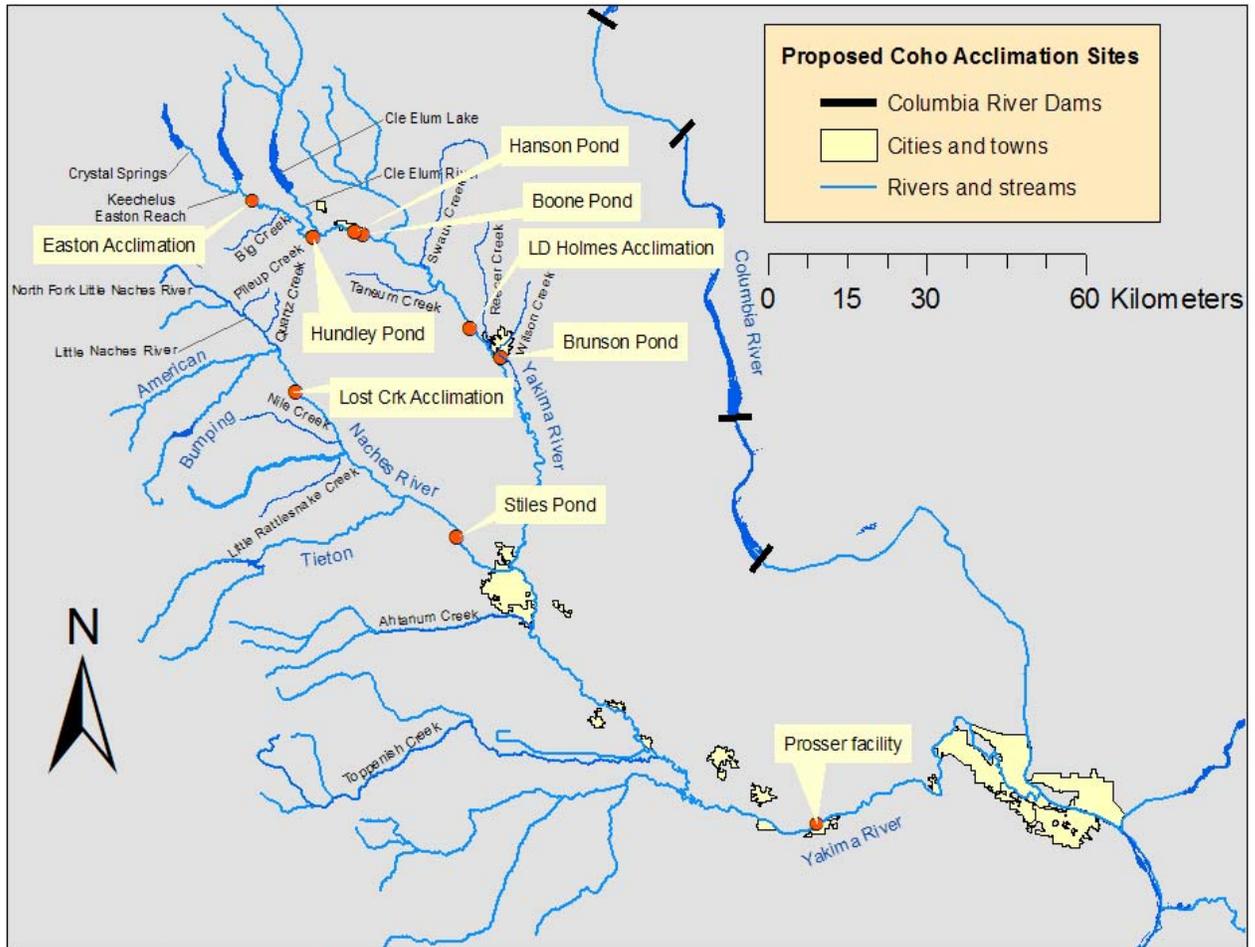
	<ul style="list-style-type: none"> • Cowiche Creek - Mid Yakima River tributaries <ul style="list-style-type: none"> • Ahtanum Creek • Toppenish Creek
Broodstock and adult collection	Prosser, Roza, and Cowiche dams. Wapatox Dam may be substituted for Cowiche Dam in the future. Collect no more than 50% natural origin, or 75% hatchery origin returns for broodstock. Up to 500 fish collected for broodstock and 560 for adult outplanting. Oct. 1–Dec. 30.
Radio-telemetry	Tag up to 100 adults, release from lower river sites (Mabton, RM 56 and Granger, RM 84) and track from jet boats, planes, and autos and at fixed dam sites (Prosser, Cowiche, Roza, and Wapatox) Mid-Sept. through Nov.
Redd Capping	Adult release sites as proposed. Temperature monitors will be placed near redd. Each tributary will be evaluated for redd capping. Spring freshets may determine which tributaries can be capped.
Spawning surveys (foot/boat)	September 15–November 30 - Mainstem Yakima (Keechelus Dam to Granger) - Mainstem Naches (Little Naches to confluence) - Ahtanum, Cowiche, Wide Hollow, and Satus creeks - Other tributaries where coho are being released as needed
Juvenile collection/rotary trapping	- Roza Dam juvenile trap: Up to 3,000 Yakima River naturally produced winter migrants will be PIT tagged (Nov.–Mar.) - Chandler Juvenile Monitoring Facility: Count, measure, PIT tag up to 3,000 coho (Nov. 15–July 15) - Ahtanum Creek rotary trap (RM 2.8) Nov. 1–June 30 - Toppenish Cr. rotary trap (RM 26.5) Nov. 1–June 30 - Naches R. (Wapatox Diversion (RM 18.4)) box trap, April 1 through May 31
Snorkeling – coho distribution, habitat use	Preferred habitat (side channel areas and mainstem pools) in the following streams: - Upper Yakima: systematic sampling (10%) of preferred habitat from Easton to Ellensburg - Naches mainstem: systematic sampling (10%) of preferred habitat from Little Naches R. to confluence - Release tributaries (Taneum, Ahtanum, Toppenish, Pileup, Nile) - systematic sampling of preferred habitat. Specific reach generally will coincide with release reaches. Summer, 3 days for each major subbasin, 1-2 days each for tributaries
Juvenile electro-fishing surveys (boat)	Yakima mainstem: systematic sampling of preferred habitat, 10 half-mile reaches between Roza Dam (RM 128) and Granger (RM 83). One in summer, one in fall/winter
Juvenile electro-fishing surveys (backpack)	<u>Distribution surveys (presence/absence)</u> Backwater channel areas in the following rivers: - Upper Yakima mainstem (Easton Dam to Wilson Cr.) - Naches mainstem: confluence to the Little Naches R. - Little Naches R.: confluence to North Fork and lower half mile of tributaries (based on presence of redds) - Tributaries near adult and parr release areas Nov.–Feb., 5-10 days/month, not every area annually <u>Non-Target Taxa of Concern surveys</u> - Upper Yakima: Taneum Cr. (treatment), Swauk Cr. (control) - Naches: Nile Cr. (treatment), Quartz Cr. (control)
1. All parr releases would be PIT tagged. If numbers prove too small for reliable estimates of survival, releases would be increased, probably to no larger than 5,000 per group.	

Figure 1: Yakima Basin Stream Reaches Proposed for Coho Juvenile and Adult Outplanting



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Figure 2: Current and Proposed New Coho Acclimation Sites



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3.2.1 Propagation Activities

Broodstock Collection

Continued development of a localized broodstock is crucial to the future success of coho reintroduction. Broodstock collection for the coho reintroduction feasibility project is currently occurring at Prosser Dam at the existing Denil ladder structure on the right bank. Beginning in fall 2007, coho broodstock are proposed to be taken from Roza Dam for the upper Yakima group and Cowiche Dam for the Naches group. Prosser Dam and Roza Dam have existing infrastructure to capture broodstock. At Roza Dam, the existing ladder and trap will be used. This traps 100 percent of the fish that ascend the fish ladder. Cowiche Dam collection will be accomplished with a trap fabricated for the YN that also traps 100 percent of the fish. Coho collected at these locations will have traveled approximately 100 miles farther than adults being collected at the Prosser Dam and, therefore, have an increased amount of fitness in their life history.

Up to 500 adult coho will be collected for broodstock throughout the run from the first week of September through the first week of December. All non-target fish intercepted during broodstock collection at Cowiche and Roza dams will be immediately passed back to the river to minimize stress and potential mortality. During the broodstock collection operation, up to an additional 560 adult coho will be collected for adult outplanting (see next section), and up to 100 of these fish would be radio tagged. These fish would be released and tracked to determine their spawning locations and timing (see monitoring section below).

The Bureau of Reclamation is determining the feasibility of retrofitting Wapatox Dam with an adult trap in the future under a different program. When and if that is completed, coho broodstock will be collected there instead of at Cowiche Dam.

Adult Releases/Out Planting

The 560 adults collected for outplanting during adult collection would be released to spawn in a number of tributaries. Up to 120 female and 160 male adult coho will be placed in three different 200-meter (218-yard) sections of Taneum Creek. These three sections have been sampled by WDFW for approximately 12 years, so they represent an excellent baseline. This will allow research on spawning conditions, impacts to native fish, and overall spawning success.

The fish will be held in place in Taneum Creek by racks, which will be constructed of heavy metal tubing and will be bolted to one another (see Figure 3). The spaces in the racks will be wide enough to allow juvenile fish to pass, but will prevent adults from moving through them. The racks will be in the creek no longer than necessary (generally up to two weeks). Fisheries technicians, (both state and tribal) will check each site daily to process carcasses and check for debris. Bull trout have not been documented in Taneum Creek, so it is unlikely that bull trout would be caught against the racks. However, as a precaution to protect any unknown bull trout populations and other fish species, and to prevent channel erosion, the racks would be removed during any flood events.

Figure 3 Stream Rack



Stream rack frame with grates removed. Two or more racks are bolted together side by side to completely span creek and prevent fish from swimming downstream.

Up to 20 pairs of adults will be outplanted in other select tributaries including Reecer Creek, Wilson Creek, Pile Up Creek, Quartz Creek, Nile Creek, Cowiche Creek, Ahtanum Creek, and Toppenish Creek. Wooden framed racks, each approximately 5 feet high and 5 feet wide, with 3-inch hardware cloth screens attached, will be placed in each creek. The frames will be attached to one another and left in place for only 24 hours before being removed. This will keep adults from running downstream immediately after release. In addition, technicians will be on site to keep the screens free of debris. It is unlikely that non-target fish would get caught in the screens, because the racks will be in the creeks for fewer than 24 hours and the racks will be removed if the water rises. The coho outplanting areas will be located in fairly secluded areas where there is moderate to good habitat and good road access. To ensure the coho will spawn soon after outplanting, they will be held at the Prosser facility until they begin to ripen, and then will be transported to the selected tributary. A Hydraulic Project Approval application will be

obtained from Washington Department of Fish and Wildlife prior to the racking of the streams.

3.2.2 Juvenile Releases

Continuing Hatchery Releases

Since 1999, up to 1,000,000 coho smolts have been released into the upper Yakima and Naches rivers under the Yakima/Klickitat Fisheries Project. The total number of smolts ranges from 650,000 to 1,000,000 each year, depending on brood success. During 2007-2010, the Yakima River coho program proposes to continue to release up to 1,000,000 smolts and parr annually in the Yakima Subbasin. Of these fish, up to 500,000 will be produced from broodstock collected from returning adults. The remainder will be smolts from two lower Columbia River hatcheries: Eagle Creek National Fish Hatchery and Washougal Fish Hatchery.

Smolts will be acclimated and released from two locations in the Naches Subbasin and from up to five locations in the Upper Yakima Basin. Releases in the Naches Subbasin will continue at the existing Lost Creek Pond and Stiles Pond acclimation sites. In the upper Yakima Basin, acclimation facilities include the existing Holmes Pond, Boone Pond, and Easton Ponds, and two new sites, Brunson Pond and Hundley Pond.

All acclimation sites are existing off-channel ponds. Boone and Holmes ponds are fed by ground water, and Stiles Pond is fed from a Naches River irrigation ditch through a WDFW fish screen. Holmes Pond becomes a fish bypass system when the Cascade Canal is flowing and the fish screen is operating, at which time the coho are allowed to leave the pond. Easton, Hundley, and Brunson ponds are natural ponds fed by groundwater and the upper Yakima River. Lost Creek is the only offstream pond with a piped water source from the creek. The water is piped approximately 100 yards underground from the Naches River and sent through the two Lost Creek ponds and then back to the Naches River. This water source is not required to be equipped with a fish screen because the fish can move freely between the ponds and the river. WDFW's Yakima Screen Shop constructed the river intake and pipeline supplying the two ponds in 1983. A small group of smolts (1,250) would also be acclimated and released from Lake Easton in the Keechelus Easton Reach to test acclimation from this site. Fish are held in these sites from late February to early April. None of the above acclimation sites or proposed sites dewater any part of the associated stream or river. All coho smolts will be released from each location on the first Monday of April (up to 900,000 per year total).

In addition to the smolt releases, up to 45,000 of the total 1,000,000 coho will be released as parr in late July each of the next four years (starting in 2007) to assess overwinter survival in some of the selected 15 tributaries (see Overwinter Survival Studies below). Also, approximately 17,000 summer coho parr will be raised at the LaSalle High School grounds and scatter-planted in Ahtanum Creek (below the forks) as part of a cooperative project with the school.

Stream Seeding

The YKFP managers propose to test a mobile acclimation unit for three years – once each in Toppenish Creek, Ahtanum Creek, and Cowiche Creek. The units are portable aluminum raceways that are 32 feet long, 4 feet wide and 4 feet tall, and will have gravity-fed water (0.2 cfs) into and out of the tanks. In addition, a small emergency generator will be connected to a float that will activate an aerator. The mobile acclimation units will be placed near the streams in areas that have existing disturbance (such as spur roads or campgrounds), and plumbed into the creek with above-ground piping and a screen to prevent fish from entering. The unit will hold up to 10,000 coho smolts for up to four weeks. Up to 1,250 of the smolts will be PIT tagged to evaluate smolt-to-smolt survival and smolt-to-adult survival. Once the smolts are released, the units will be removed until the following season.

3.2.3 Monitoring and Evaluation Activities

Juvenile Collection at Roza Dam

The existing juvenile fish trap at Roza Dam will be operated all winter and into the spring. This trap will assess coho parr and smolt out migration. Operation of the trap is intended to collect juvenile wild and hatchery coho smolts. Once collected, the coho will be PIT tagged and released directly back into the river. These activities are designed to determine the overall survival of hatchery fish as compared to wild fish and those migrating hatchery fish as compared to those fish migrating later.

Juvenile Collection at Chandler Canal

The Chandler Juvenile Monitoring Facility (CJMF) is the primary means by which anadromous smolt production in the Yakima River Basin is monitored, including spring and fall chinook, coho, and steelhead. The CJMF is located on Chandler Canal, an irrigation/hydropower diversion on the left bank of Prosser Dam at River Mile (RM) 47, and is operated from December 20 through July 15 annually. The trap is operated 24 hours a day, seven days a week. The Chandler trap has been in operation since 1984.

The smolt monitoring consists of species enumeration, random sample for lengths, and weights and scales for age information. Fish are released from the recovery tank into the bypass pipe and returned to the river. Recovery tank releases are made at night to lessen avian predation. Non-target fish species are passed directly back to the river with minimum handling to reduce stress.

Other Juvenile Collection Facilities

Ahtanum Creek - This existing rotary screw trap is operated under the Yakima Reservation Watersheds Project and has been in operation for seven years to assess steelhead production from Ahtanum Creek. The trap is run from early December through May. The trap is visited once or twice daily depending on stream flows. Coho juvenile data will continue to be collected incidentally to the steelhead monitoring.

Toppenish Creek - This existing rotary trap has been in full operation for approximately 7 years. Its purpose is to monitor and assess summer steelhead production from Toppenish Creek and its tributaries. The trap is operated from early November through May. The trap is visited once or twice daily depending on flows. Coho juvenile data will continue to be collected incidentally to the steelhead monitoring.

Naches River - A new box trap in the Wapatox Diversion will be operated from April through May. This location will be used because of problems with the Selah Naches Diversion location. A 3 by 3-foot box trap will be operated four days a week from April 1 until May 31. Fisheries technicians will check the trap up to twice daily, depending on the fish capture numbers. The trap will be operated to collect baseline data on all migrating salmonid smolts, including coho.

Spawning Surveys

Coho spawning surveys are conducted annually on Ahtanum, Cowiche, Wide Hollow and Satus creeks. They are also conducted in the mainstem Naches River from Cowiche Dam to the confluence with the Yakima and in the Yakima River between Selah and Union Gap. Spawning ground surveys will be expanded to include the proposed tributaries and reservoirs where coho parr and adults are proposed to be outplanted. Surveys will also be expanded to include other suitable tributaries if found. The creek surveys will continue to be conducted on foot, while the mainstem surveys are by raft and power boat. As more coho return to the basin, the index reaches for surveys will be expanded. Data including length, sex, and scales for age analysis are collected from spawned-out carcasses.

Visual surveys will also be conducted in the upper Yakima and Naches subbasins near the acclimation sites described above from mid-September through late November. Surveys will consist of either walking stream margins or floating stream reaches to count and record the spatial distribution of coho redds in these areas. Data on carcasses found will also be collected.

Radio-tagging

Migration timing, habitat utilization and spawning distribution will continue to be monitored for up to 100 adult coho radio-tagged at Prosser Dam from 2006 through 2010 by using a combination of fixed and mobile radio telemetry gear located throughout the Yakima Basin from mid-September through November. The fish will be released from Mabton (RM56) and Granger (RM 84) on the Yakima River and allowed to proceed upstream to spawn. Weekly jet boat and automobile surveys and three monthly aerial surveys will be conducted in addition to fixed monitoring sites, which may include Sunnyside, Roza, Cowiche, and Wapatox dams.

Snorkel Surveys

Snorkeling spot checks will be conducted near acclimation release sites and throughout both the upper Yakima and Naches river systems from spring through fall. These checks will allow estimates of the numbers of coho that have residualized (not migrated to the

ocean). The snorkel surveys will also be used to determine the locations of coho for subsequent electro-fishing to collect naturally-rearing coho to PIT tag.

Redd Capping

Redd capping will be conducted to assess spawning success. Redd caps are large nets that are buried around a selected redd. The net funnels newly-emergent fry into a small holding vessel where they can be enumerated and released. The nets are inverted and the edges are buried 6 inches down and up to 3 feet from the redd. The net is then allowed to fall over the redd and tail out below it, where the capture vessel is located. Temperature monitors will be placed near each redd cap. Selected redds will be capped in tributaries that are fairly stable with good flow. Redd capping may be done on all of the adult release tributaries, or at least a portion of them, depending on flow conditions. Redd caps will be checked daily and used to assess percent survival of fry from redds in tributaries.

Overwinter Survival Studies

Up to 3,000 PIT-tagged summer parr will be released into each of up to 14 select tributaries in late July (total of approximately 42,000 parr will be released). The tributaries will be selected from the list in Table 1. The parr will range from 75-90 mm (2.95-3.5 inches), to closely resemble the size of naturally-rearing coho. The coho survival for each tributary will be monitored using the PIT tag detectors on the mainstem Yakima River and Columbia River dams. Late summer snorkeling and backpack electrofishing will also be conducted in the tributaries to assess the presence or absence of these coho.

In addition, 3,000 summer parr will be released into the Upper Cle Elum River above Cle Elum Lake and into the Upper Bumping River above Bumping Lake, and a group of up to 12,000 smolts will be acclimated in Lake Cle Elum and released. The spillway on Lake Cle Elum has been retrofitted to surface spill water through two PIT tag detectors. Bumping Lake has no such detectors; however, engineering plans are currently being drawn for downstream juvenile monitoring sites using PIT tag detectors on mainstem dams in the Yakima and Columbia rivers, and McNary Dam currently has a detector installed. The smolt releases will be used to test the downstream passage at the Lake Cle Elum spillway, and the parr releases will be part of the overwinter survival studies. Because once the parr are released there will be no way to tell if they remain in the tributaries over winter or move into the mainstem systems, replication will be planned for four years. Over the span of four migration years, different environmental changes will occur and juvenile coho survival in the tributaries should reflect the changes. Both Lake Cle Elum and Bumping Lake coho activities will be done in cooperation with the Bureau of Reclamation and their feasibility studies on providing upstream and downstream passage at the two projects.

Non-Target Taxa of Concern Studies

Evaluations of interactions between coho and other resident fish species (non-target taxa of concern) will be conducted on Taneum Creek, Swauk Creek, Quartz Creek, and Nile

Creek. Baseline studies identifying weight/length relationships in rainbow/steelhead trout and sculpin have been conducted on these tributaries. Adult coho will be released to spawn into these monitoring areas and changes in the weight/length relationships of the resident fish populations will be studied to assess interactions between the coho offspring and the resident fish. Evaluations will be conducted in the summer by electrofishing and snorkeling monitoring reaches, collecting rainbow/steelhead trout and sculpin and measuring them.

Carcass Distribution

Approximately 400-500 adult coho and fall chinook broodstock fish carcasses from the hatchery will be distributed in tributaries where coho are known to overwinter. The carcasses will provide essential nutrients for emerging young coho, and for their food sources. In addition, carcasses will be placed in side channels and beaver ponds of the Upper Yakima River, Naches River and Little Naches River. Carcasses will be put out in late winter (January and February) and distributed either by foot or boat. The fish carcasses will be prepared by gutting them and removing the heads, then bagging and cooking the fish at over 100 degrees Fahrenheit for a minimum of four hours. The fish will then be frozen for at least two weeks. Each bag will usually have up to four coho (4-6 pounds each) or two fall Chinook (10 pounds each).

4. Effects of Newly Proposed Study Activities

The following Phase II coho reintroduction feasibility study activities have not been analyzed under the previous EIS or supplement analyses and will be analyzed in this document:

- Addition of new smolt acclimation ponds in the upper Yakima: Brunson and Hundley
- Use of a mobile acclimation unit to acclimate and release smolts in Toppenish, Cowiche, and Ahtanum creeks
- Releases of parr in up to 15 tributaries
- Releases of adults in up to nine tributaries
- Capping of coho redds in the above tributaries
- Additional spawning surveys in the above tributaries
- Additional snorkeling surveys in the above tributaries
- Additional juvenile backpack electrofishing surveys in the above tributaries

4.1 Analysis of Impacts on the Environment

No new permanent facilities are proposed to be constructed under Phase II of the coho study. The new smolt acclimation ponds are existing ponds that will require only the placement of a net across the outlet to temporarily hold the coho smolts during the four-to-six week acclimation period. The mobile acclimation unit will result in only minor temporary impacts to its immediate vicinity. Effects of the adult and parr releases and additional research proposed would mostly be limited to effects on other fish. A detailed discussion of the impacts by category follows.

4.1.1 Air Quality

There would be no new construction that would contribute to air quality issues. There will be additional trips to the various tributaries in trucks and other vehicles by YN personnel, and the use of a portable generator at the mobile acclimation site for a period of about four weeks, both of which will slightly increase emissions of air pollutants in those areas. Some of the areas are fairly remote but all are accessible by existing roads. These impacts are similar in nature to those that currently occur as a result of transportation; the degree of the impact is minor and there will be no significant reductions in the air quality of the surrounding region.

4.1.2 Terrestrial Habitat/Land Use

The only impacts to terrestrial habitat would be from the temporary siting of the mobile acclimation unit. Two of the siting locations would be on tribal lands on the reservation (Toppenish and Ahtanum creeks), and the third site (Cowiche Creek) would be on private or state land (with appropriate permission). The unit would be sited in previously disturbed areas accessible to trucks and other vehicles (such as spur roads), and would occupy an area approximately 10 feet by 40 feet. No ground disturbance or additional access would be needed; the unit would be trucked in and set on the ground, and all piping would be placed above ground. A self-contained trailer may also be placed at the site to house a caretaker. The unit and trailer would remain for only about four weeks (mid-April to mid-May) while the coho smolts are acclimating. After the fish leave, the acclimation unit, piping, and trailer would be dismantled and removed, and the area would be restored to its previous condition. The units will not be sited in habitat for any terrestrial threatened or endangered species or other species of concern, or in wetlands.

There will be no impacts to terrestrial habitats or land uses from the use of the existing Hundley and Brunson ponds for smolt acclimation. The ponds are located on private lands and the YN will have an agreement with the landowner to use them. A net will be staked into place at the pond outlets to hold the fish until they are released. If necessary, any piping or placement of concrete blocks would be done above ground, with no significant ground disturbance. No other ground disturbance will occur. Daily trips will be made to the ponds to feed and check on the fish and clean the nets during the four-to-six week acclimation period.

4.1.3 Aquatic Habitat

Water quality may be slightly affected by the discharge of fish wastes from the two new acclimation ponds and from the mobile acclimation unit. However, the number of fish in the ponds and acclimation unit will be low, and the fish will be present for only four-to-six weeks in the spring when flows are high. No ground disturbance will occur, so sedimentation would not occur. Only negligible or minor increases in water temperature would result from the temporary diversion of 0.2 cfs (50 gallons per minute) of water from Toppenish, Ahtanum, or Cowiche creeks through the mobile acclimation unit. The diversion would occur during spring run-off (mid-April to mid-May) when water temperatures are naturally low and water quantity at the site is usually abundant; minimum instream flows would be maintained. The diversion would be designed not to affect fish passage and would be screened to prevent fish from becoming entrained. The water diversion for the mobile acclimation unit will require use permits from the Washington Department of Ecology. The diversion would not affect the rights of any other water users. All pertinent permits will be acquired by the YN prior to this activity.

The adult outplanting would require the placement of racks in the streams for a period of 24 hours for all streams except Taneum, where they will remain for approximately two weeks. These racks are attached to each other and set onto the stream bed without anchoring and therefore will cause little or no disturbance to the stream bed. The rack locations would be chosen to avoid any other anadromous fish spawning areas. YN staff will monitor the racks twice a day for debris build-up and remove them in the case of a high flow event. The YN will obtain all necessary permits for the racks prior to installing them.

During the scoping for the Phase II study, the Yakima Basin Joint Board and the Roza Irrigation District raised issues regarding potential impacts to water rights from the increases in numbers and locations of coho releases under the proposed Phase II study. However, there are many factors mitigating the Phase II study's impacts on water users and irrigators.

- The tributaries in the study were specifically selected by the YKFP biologists because the existing lawful irrigation or municipal water uses on those tributaries leave sufficient water in the streams to support reintroduced coho.
- The coho broodstock will be selected for favorable migration timing to match existing stream flow patterns. Since the identification of streams for the study was based on existing patterns of water use and habitat conditions, the resulting presence of coho in the tributaries would not affect water use patterns.
- BPA, WDFW, and the YN have and, along with the Bureau of Reclamation, will continue to work cooperatively with irrigators in the basin to correct passage and fish screening problems and minimize impacts to water users from the listing of steelhead and bull trout under the Endangered Species Act, as well as from the operations of the YKFP.

- There will be no net increase in numbers of hatchery coho released in the Yakima Basin under the proposed Phase II study. The parr releases will replace some of the previous smolt releases so that the total number of hatchery coho released per year will not exceed one million fish.
- Placing the 20 pairs of adults in each of the tributaries to spawn, if they successfully spawn, could result in an increase of a maximum 6400 in the total number of outmigrating naturally-spawned coho smolts from the Yakima Basin, or less than 1 percent per year over the one million smolts currently being outplanted. This may, in turn, result in 80 to 600 additional coho adults returning per year and eventually may result in increasing numbers of naturally produced coho in the tributaries, but this increase would be very gradual. The actual returns will most likely be less than the projected numbers, because it is uncertain whether all of the tributaries can actually support coho spawning and rearing. The overall net increase in numbers of coho in the basin due to the Phase II study will be minor.

The Yakima Basin Joint Board was also concerned that two of the selected study streams, Wilson and Reecer creeks, currently have numerous fish passage barriers and unscreened diversions. However, BPA and the Salmon Recovery Funding Board have recently funded habitat improvement programs in these streams that have opened up approximately 13 miles of barrier-free, screened habitat on Wilson Creek, and have funding in place to open up three miles of habitat on Reecer Creek. In the newly opened habitat on these creeks there are no barriers and all diversions are screened. Existing passage barriers will prevent juvenile fish from reaching unscreened upstream diversions.

Finally, the Joint Board and Roza Irrigation District expressed their opinion that coho have no rights to instream flows under the Yakima Basin adjudication (Washington State Department of Ecology v Acquavella, et al. Cause No. 77-2-01484-5), and a concern that BPA could try to create such a right by classifying the coho as “natural origin” or “wild” fish. There is disagreement between the YN and the Joint Board over whether coho have water rights under the Acquavella decision. BPA has no standing on this issue and will not make any assertions regarding water rights for coho. BPA and the YN have pledged to make all reasonable attempts to conduct the Phase II coho studies in cooperation with the irrigators and water users of the Yakima Basin to avoid a legal debate over this issue without either party having to concede its position. Toward that end, as discussed above, the project proponents have designed this Phase II study around existing water rights and flow regimes so that no additional water or changes in water rights is required.

Issues regarding the operation of Roza Dam are discussed below under “Economic Impacts.”

4.1.4 Fish and Wildlife Impacts

Only negligible effects to wildlife would result from the new Phase II activities. There would be additional minor temporary disturbances to wildlife from the slightly increased

research activities, increased fish releases in the tributaries, and new acclimation sites, but no terrestrial wildlife habitat will be permanently disturbed, as described above.

Some impacts to existing resident and anadromous fish populations resulting from the Phase II study may occur. The YFP EIS discussed potential ecological interactions (competition and predation) between coho and other species in the lower Yakima Basin, where coho were expected to be acclimated and released (BPA 1996, Section 4.1.2). The EIS also anticipated a monitoring program to quantitatively describe species interactions in an attempt to better understand the risks involved and to modify activities if necessary to contain those risks. Studies conducted to date as part of this program inform the conclusions discussed below.

Effects of Acclimation and Releases

Predation: In an effort to determine the ecological risk of re-establishing coho within the Yakima subbasin, the YN conducted field studies at the beginning of the Phase I coho study (1998 and 1999) to assess the risks of coho predation on other salmonids. The only fish species that were considered to be susceptible to predation by coho smolts is spring chinook. All other species emerge in mid-summer after the coho smolts migrate. The YN concluded that the impact of coho predation on spring chinook fry within the selected study reach (approximately RM 202 to RM 194 on the upper Yakima River) affected only a negligible proportion of the spring chinook produced in this study reach (Dunnigan and Hubble 1998). This is the general area of the Yakima River where coho have been released in 2000 and beyond. Because the reach studied in 1998 and 1999 is believed to be a worst case scenario (i.e., coho were released directly upstream of a large concentration of spring chinook redds while the spring chinook fry were emerging), it is expected that impacts at other locations would be less severe. Similar studies of predation by hatchery coho smolts on summer chinook and spring chinook were conducted in the Wenatchee Basin in 2000 and 2001, with similar results, indicating that predation by hatchery smolts on these species is low (Murdoch and Dunnigan 2001; Murdoch and LaRue 2002).

The risk of coho predation on steelhead juveniles is low, due to the lack of temporal and spatial overlap between the period of coho smolt emigration and age-0 steelhead emergence. YN field work has indicated that young-of-the-year steelhead emerge from the gravel after the coho have migrated through the Yakima system. Additionally, yearling rainbow/steelhead are too large to be readily consumed by coho smolts. The risk to bull trout is especially low due to the limited spatial and temporal overlap between coho smolt emigration corridors and bull trout spawning areas (WDFW 1998).

The risk of predation on other fish species by parr and by second generation coho spawned in the wild is low, also due to spatial and temporal separation between them and other salmonid species. To reduce the risk of predation by coho on other species, coho parr and adults will be released in relatively low densities (20 pairs of adults released and 3,000 parr scatter planted over 10 miles of tributary). The parr will be sized to more closely resemble sizes of wild coho (70-85mm) and steelhead yearlings (70-100mm). While the parr will be larger than newly emerging steelhead/rainbow trout (40-60mm), their size differences are not so different that the coho are likely to prey on them, and

they have been observed to occupy different parts of the streams than the emergent steelhead/rainbow trout. It is more likely that rainbow trout adults and sculpin will prey on the coho parr.

Based on the evidence of potential for impact and on the mitigation measures proposed, the impacts of direct predation by coho hatchery parr and smolts on native salmonids are expected to be minimal.

Competition: Direct competition for food and space between hatchery coho and other species can result in displacement of other fish into less preferred areas, which can potentially affect their growth and survival. For competition to have an adverse effect, the same limited resource must be used by more than one species. However, in some instances, competition for space and food may clearly alter patterns of microhabitat utilization, while having no effect on productivity or viability (Spaulding et al. 1989). Indeed, the small-scale shifts in use for habitat niches may represent a benefit at the community level because environmental resources are used more efficiently (Nilsson 1966).

Juvenile coho salmon are thought to be more aggressive relative to other juvenile salmonids; thus they may compete with other hatchery or naturally-produced salmonids under certain conditions. However, Groot and Margolis (1991) suggest that there is little habitat overlap between coho and other salmonids, and that this habitat segregation provides a possible mechanism for reducing ecological interactions between the species. Coho salmon and steelhead are reported to share habitat along the western coast of North America (Fraser 1969; Hartman 1965; Johnston 1967; Burns 1971), with both species residing in freshwater for extended periods (Groot and Margolis 1991). However, the reported impacts of the presence of coho salmon on rainbow/steelhead trout are conflicting. Coho were shown not to affect steelhead growth or habitat use in the Wenatchee River (steelhead occupied different microhabitats than salmon) (Spaulding, et al. 1989); and coho affected steelhead habitat use only to a small extent in another Washington stream (Allee 1974; 1981). However Hartman (1965) concluded that strong habitat selection occurred in the spring and summer as a result of aggressive behaviors which were differentially directed by coho against steelhead in pools and by steelhead against coho in riffle habitats.

Coho salmon have been shown to displace cutthroat trout from pool habitat into riffle habitat (Glova 1984; 1986; 1987; Bisson et al. 1988), even though both species preferred pool habitat in the absence of the other species. Tripp and McCart (1983) observed increasing negative impacts on cutthroat trout growth and survival as coho stocking densities increased.

In 1998, the YN conducted field experiments to address the impacts of coho on the growth, abundance, and broad-scale geographical displacement of cutthroat and rainbow/steelhead trout. Researchers found no evidence that coho salmon influenced the abundance of cutthroat or rainbow trout when they compared the abundance of each species at sites where coho were stocked and where coho were not stocked. In addition, they found no evidence that coho affected the growth of cutthroat or rainbow trout when

they compared the condition factor of each species in areas with and without coho (Dunnigan and Hubble 1998). Ongoing interaction experiments to follow up on this initial study are proposed as part of the second phase feasibility study.

The results of other studies in the Yakima and nearby basins (Dunnigan and Hubble 1998; Spaulding et al. 1989) also suggest that competition between coho and other species may not be significant. Although mountain whitefish are ubiquitous in the upper Yakima and Naches systems, they use quite different habitats than coho.

In summary, coho competition with other species is expected to be minimal. Project biologists will review all known interaction and species distribution data for each tributary prior to final selection of the outplanting streams and locations to minimize potential impacts. Potential impacts on other salmonids from coho adults spawning in tributaries should be negligible. The only species that would be spawning at the same time as coho would be bull trout, but they would be spatially separated, as bull trout would be spawning much higher in the tributaries than coho.

Potential benefits to upper Yakima and Naches fish populations include an increase in nutrients due to the presence of coho salmon carcasses (Bilby et al. 1996), although this effect would be a longer-term benefit if numbers of naturally spawning coho increase. Juvenile coho might also be prey for larger bull trout, rainbow trout, and sculpin.

Disease: Hatchery fish, especially from out-of-basin hatcheries, have been known to import new fish diseases into a basin, or spread diseases within the basin. Under the proposed study, there will be no changes in the numbers of hatchery coho or hatcheries supplying coho. All of the hatchery fish are screened for diseases once a month and fish will not be outplanted in the Yakima if diseases are found.

Adult collection: Collection of coho adults at Prosser, Roza, and Cowiche dams for broodstock and outplanting would continue in the same manner as currently. The only change will be an increase in the numbers of adult coho collected for the adult outplanting part of the study. The adult traps are constantly staffed (Prosser) or monitored twice a day (Roza and Cowiche) when they are in operation. All non-target species encountered are passed back to the river immediately via a controlled shunt. Minimal handling will reduce stress and potential mortality.

Effects of Spawning Surveys, Snorkeling, Electrofishing, and Redd Capping

Effects of the additional spawning surveys and snorkeling on resident and anadromous fish would be negligible. Some fish may be temporarily disturbed, but areas containing redds of fish other than coho would be avoided, and no fish will be collected or touched during snorkel surveys. Backpack electrofishing surveys would be conducted only in areas identified by snorkel and spawning surveys as potential coho juvenile habitat, and only coho would be handled. No electrofishing would be conducted in areas where bull trout may be present. Surveyors will follow NMFS electrofishing guidelines to minimize potential adverse effects to both coho and other fish.

Redd capping will cause minor disturbances to the stream substrate and may dislodge small amounts of sediment. Spawning areas of all species except coho will be avoided, so there will be no impacts to other species.

Endangered Species Impacts

BPA has been in ongoing consultation under Section 7 of the Endangered Species Act with the National Marine Fisheries Service (NMFS) and with the U.S. Fish and Wildlife Service regarding the impacts of the overall Yakima Fisheries Project. Consultations under Section 7 of the ESA were initiated during the initial environmental process for the project, the Yakima Fisheries Project EIS, culminating in 1996.

Subsequent to the initial consultation, Yakima Basin bull trout and steelhead were listed under the Endangered Species Act as “threatened.” BPA reinitiated consultation in 1999 due to these new listings and as part of previous supplement analysis processes. BPA is again reinitiating consultation with both USFWS and NMFS due to the listing of critical habitat and subsequent changes to the program, including the Phase II study. A biological assessment of impacts to bull trout has been submitted to USFWS, and a biological assessment and updated Hatchery and Genetic Management Plans are being prepared by the YKFP co-managers and BPA to assess impacts to steelhead.

Except for monitoring and evaluation activities that are part of the ongoing Yakima Fisheries Project that result in handling (take) of bull trout and steelhead, impacts to them would be minor due to the spatial and temporal separation between the species’ habitats as discussed above. BPA currently holds a biological opinion from USFWS for the incidental take of bull trout, and a Section 10 permit from NMFS for the direct take of steelhead due to the ongoing activities of the Yakima Fisheries Project.

4.1.5 Economic Impacts

Economic impacts from the Phase II study would be negligible. The direct cost of the Phase II study would be only a small fraction of the total amount of funding provided by BPA for the Yakima/Klickitat Fisheries Project. No new facilities, fish production, or personnel would be required.

The Roza Irrigation District and Yakima Basin Joint Board, in their scoping comments, raised issues of economic losses due to the potential need to change the operations of Roza Dam. This is an irrigation dam located upstream of the City of Yakima that is owned and operated on behalf of the Roza Irrigation District by the Bureau of Reclamation. The dam is also used to generate power to help offset the power needs of the irrigation pumps. BPA markets any surplus power generated at the dam and supplies the irrigation district with power when there is a generation shortfall. There is currently a concern that downstream-migrating anadromous smolts (including coho, spring Chinook, and steelhead) and steelhead kelts (steelhead adults that have spawned and are returning to the ocean) are delayed at Roza Dam because of the small and submerged gate opening that results during low flows at the dam. The System Operations Advisory Committee, consisting of fishery biologists representing federal, state, tribal, and irrigation entities,

has recommended that dam operations be altered during the downstream migration period to allow more water to flow over the top of the dam to facilitate passage of the smolts and steelhead kelts (SOAC 2007). When dam operations are modified, power production is reduced, and the irrigation district is concerned that this may affect their power contract with BPA and result in increased power costs for the operation of the District's facilities.

BPA, the Bureau of Reclamation, and the System Operations Advisory Committee are in the process of investigating alternatives that would facilitate downstream passage and address the economic concerns of the Roza Irrigation District. This issue arose prior to the initiation of the Phase II study and is not likely to be resolved imminently. However, as pointed out by both the Joint Board and the irrigation district in their comments, this is an ongoing problem. Contrary to their statements, however, BPA does not believe that the Phase II study will exacerbate the problem. The additional number of smolts migrating downstream through Roza Dam as a result of the Phase II study would not exceed 4,000 per year, a potential increase of about 0.2 percent over the approximately 2 million smolts (of all species) currently migrating through the dam. There may be some additional natural production resulting from the placement of the coho adults in the tributaries, but due to the small numbers of adults and experimental nature of the action (i.e., testing to see if spawning is even viable in these tributaries), the actual number of smolts resulting from natural spawning will be low, and there will be no increase in the number of hatchery fish being produced or outplanted in the basin. In addition, the operations at Roza would be an issue whether or not coho or other anadromous hatchery fish were being produced in the Yakima Basin, due to the presence of steelhead, which are listed as threatened under the Endangered Species Act. Since steelhead smolt and kelt downstream passage is currently being affected under certain flow conditions and operations, changes to the Roza Dam operations likely would be required whether coho or the other YKFP-produced fish are present or not. The Bureau of Reclamation and NMFS are currently in consultation under the Endangered Species Act on the operation of the irrigation system and its impacts to steelhead. Since the coho smolt migration occurs during the steelhead smolt and kelt migration (SOAC, 2007; Fast and Berg 2001), the coho Phase II study would not require that Roza Dam operations be any different than the current or alternate dam operations under discussion.

4.1.6 Tribal Interests

Coho as well as other anadromous and resident fish have always played an important role in Yakama Nation customs, cultures, and economies. The Phase II study may benefit Tribal interests in the long run, but there will not be any major short-term negative or beneficial effects from the Phase II studies. The YN would eventually like to see enough coho returning to allow harvest, which would support their goals of regaining some of their traditional fishing opportunities. The information gained by the coho feasibility studies will be useful to the possible future expansion of coho production in the basin; however, as discussed above, the number of adult coho returning to the basin as a result of the Phase II studies is not likely to increase dramatically over the short term of this study and would not sustain harvest in the tributaries.

4.1.7 Cultural and Historic Resources

There would be no impacts to cultural or historic resources because no ground-disturbing activities would occur. No new construction is proposed. The mobile acclimation unit will be placed on an existing road spur or in a campground, and no leveling or other ground disturbance is required. All piping will be above ground, and no trenching will occur. If any piping or use of concrete blocks is required for the acclimation of fish at Hundley or Brunson ponds, they would also be placed on the ground with no trenching. The placement of the adult racks in the streams also would not cause any ground disturbance, as they will be set onto the stream beds.

4.1.8 Aesthetics

The only noticeable visual impacts from the Phase II study would be from the temporary siting of the mobile acclimation unit. The unit is approximately 32 feet long by 5 feet wide and stands about 5 feet tall. There would also be above-ground plastic piping, a generator, and an associated travel trailer for housing. The mobile acclimation unit would be rotated annually between three different streams and would only be present for about four-to-six weeks. It would be placed in previously-developed areas such as spur roads or campgrounds, either on the Yakama Reservation (Ahtanum and Toppenish creeks) or on private or possibly state lands on Cowiche Creek. Effects to aesthetics would therefore be temporary and minor.

4.2 Public Involvement

BPA and the YN held a public open house and comment period for scoping of the environmental issues for Phase II of the coho feasibility study. The public open house was held on August 16, 2006 at the Yakima Arboretum. The meeting notice, a fact sheet, and a comment form were sent to over 300 persons and organizations, and the meeting was announced in local papers and on the YKPF web site. Eleven members of the public attended and none gave comments at the meeting. The comment period was open between July 21 and August 23, 2006. Five comment letters or e-mails were received.

The first comment letter was from an individual who was excited about the coho program, but suggested that the project be expanded to include supplementation of steelhead. Letters were received from the North Yakima and Kittitas County Conservation Districts, both of which were supportive of the program and wished to explore opportunities for partnerships and sharing of data with the Yakima Fisheries Project.

Another letter was received from the Yakima Basin Joint Board, a coalition of water users within the Yakima River Basin (five irrigation entities and the City of Yakima). The Joint Board expressed concerns regarding impacts to water rights holders from the current Yakima Fisheries Project and the proposed Phase II study. They are concerned that:

- the Phase II study may create a water right for coho where they believe one does not exist;
- that there will be additional demands on irrigators and municipal water users for additional flows and releases of stored water to move migrating anadromous smolts;
- that reintroduction of coho and supplementation of other anadromous fish under the YKFP has exacerbated problems with the operation of Roza Dam;
- that the project may be impacting species listed under the Endangered Species Act; and
- that two of the tributaries (Reecer and Wilson creeks) proposed for parr and adult coho reintroductions under the Phase II study have numerous fish passage barriers and unscreened diversions that may make them unsuitable for the study.

The final comment letter was from the Roza Irrigation District. The District is concerned about the issue of downstream fish passage at Roza Dam. When anadromous smolts are migrating downstream, they hold in the forebay due to low flows over the dam, and the dam operations are changed to facilitate their passage. This can result in impacts to power generation, and subsequently can have a fiscal impact on the irrigation district in the form of lost revenues from the power produced. The District is concerned that BPA needs to address this problem not only for the Phase II study but also for the ongoing YKFP.

The concerns raised by the Yakima Joint Board and the Roza Irrigation District have been discussed and addressed in the impact analysis section above.

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