Anadromous Fish Committee
Columbia Basin Fish and Wildlife Authority

Project Implementation Review

Anadromous Fish Committee of the Columbia Basin Fish and Wildlife Authority
First Program Implementation Review

January 27-28, 2004
North Bonneville, Washington
Review Program

Tuesday January 27

Session 1: Klickitat Subbasin

10:00 – 10:05 a.m.	Project Review Overview
10:05 - 10:15	Project 198812035: Klickitat Subbasin Management, Data, and Habitat; Bill Sharp, *Confederated Tribes and Bands of the Yakama Indian Nation*
10:15 – 12:00 p.m.	Project 199506355: Yakama/Klickitat Project M&E; Will Conely, *Confederated Tribes and Bands of the Yakama Indian Nation*, and Project 199705600: Klickitat Watershed Enhancement Project; Rolf Evenson and Joe Zendt, *Confederated Tribes and Bands of the Yakama Indian Nation*
12:00 – 1:00	Lunch

Session 2: Fifteen Mile Subbasin

1:00 – 2:00	Project 199304000: Fifteen Mile Creek Habitat Restoration Project; Brian Benjamin and Steven Springston, *Oregon Department of Fish and Wildlife*
2:00 – 3:00	Project 200102000: Fifteen Mile Creek Riparian Fencing/Stream Survey; Brian Benjamin and Steven Springston, *Oregon Department of Fish and Wildlife*
3:00 – 4:00	Project 200102100: Fifteen Mile Creek Riparian Buffers; Ron Graves, *Wasco County Soil and Water Conservation District*
4:00 – 5:00	Project 200102200: Fifteen Mile Creek Orchard Pesticide Pollution Risk Study; *Wy'East Resource Conservations and Development Area*

Session 3: White Salmon Subbasin

5:00 – 6:00	Project 200102500: Salmonid Production in Restored Rattlesnake Creek; Patrick Connoly, *U.S. Geological Survey; Jim White,Underwood Conservation District; and Gregg Morris, Confederated Tribes and Bands of the Yakama Indian Nation*

Wednesday January 28

Session 4: Hood River Subbasin

9:00 - 9:05 a.m.	Project Review Overview
9:05 - 10:00	Project 198804304: Hood River Production Program; Erik Olsen, *Oregon Department of Fish and Wildlife*
10:00 – 11:00	Project 198805303: Hood River Production Program; Mick Jennings, *Confederated Tribes of the Warm Springs Reservation of Oregon*
11:00 - 12:00	Project 198802100 – Hood River Fish Habitat; Mick Jennings, *Confederated Tribes of the Warm Springs Reservation of Oregon*

Abstracts and Background of Projects

Project 198812035: Klickitat Subbasin Management, Data, and Habitat; Bill Sharp, *Confederated Tribes and Bands of the Yakama Indian Nation*

The YKFP Management Project guides studies designed to respond to the CRBFWP need for scientific knowledge of viable means to rebuild and maintain naturally spawning anadromous runs. NPPC believes that comparable declines of fish populations throughout the Columbia River Basin can benefit from YKFP research. In the Klickitat subbasin, the YKFP will incorporate positive findings from Yakama subbasin supplementation activities to increase spring chinook and steelhead populations for natural production and harvest augmentation. The Yakama Nation (YN) serves as the lead agency of the co-managed YKFP (YN and WDFW). As lead, the YN is responsible for Project planning and design; the construction, operation and maintenance strategies for future YKFP facilities; directing M&E of Project research; directing habitat and passage improvement activities. A single representative appointed by both YN and WDFW form the YKFP's Policy Group. The Policy Group's purpose is to provide policy direction to the Lead Agency relative to Project operations. The Policy Group works closely with and coordinates with BPA on finance administration, reporting protocols and NEPA compliance. Planning functions have expanded dramatically with the advent of the NPPC's subbasin and master planning initiatives, and Klickitat Hatchery Transition Planning.

OBJECTIVE	TASK
1. Support YN policy development related to YKFP activities in the Klickitat subbasin.	a. Coordinate and direct all Policy Group policy and planning functions.
	b. Coordinate with WDFW in planning and facilitating the Project Annual Review; ensure scientific peer review.
2. Coordinate and/or perform all tasks necessary to the development of Project planning documents.	a. Coordinate all planning activities, consistent with YN responsibilities under MOU with WDFW.
	b. Oversee and develop all planning documents, including, but not limited to: 1. Preliminary Design Report; 2. Subbasin plan; 3. M & E plan. See narrative for list of planning documents needed.
	c. Ensure review and modification, as needed, of Planning Status Reports; Uncertainty Resolution Plans; and Annual Operation Plans.
	d. Analyze PAR results for future incorporation into YKFP Objectives and Plans.
3. Provide comprehensive management oversight of the implementation of YKFP activities.	a. Manage and direct YN/YKFP management, administrative, science and technical personnel.
	b. Manage and direct contractors
	c. Manage and implement monitoring & evaluation activities; operations & maintenance activities; and design and construction activities.
	d. Provide office space (e.g. Nelson Springs), equipment, supplies

	and services to YN/YKFP personnel;
	e. Produce financial and operations reports.
	f. Ensure Project financial accountability.
	g. Coordinate all NEPA/SEPA requirements and ensure Project ESA compliance.
	h. Coordinate and direct STAC review of all technical/ scientific information and tasks planned by the YKFP.
	i. Coordinate STAC recommendations to Policy Group for implementation.
4. Provide required administrative support for Project operations.	a. Provide required administrative support for Project operations.
5. Design, Develop and Manage YKFP's Data and Information System.	a. Administrative tasks: information system planning; progress reviews; and similar tasks.
	b. Database design, development and maintenance.
	c. Network and website design, development, and maintenance.
6. Coordinate participation in water and habitat planning/ development initiatives by various agencies, groups and committees.	a. Participate in various basin initiatives relative to all water and habitat matters that will impact the YKFP.
	b. Plan and implement habitat improvement projects in the Klickitat basin.

Project 199506325: Yakama/Klickitat Project M&E, Rolf Evenson and Joe Zendt, *Confederated Tribes and Bands of the Yakama Indian Nation*

The Klickitat M&E Project objective centers on habitat, life histories and abundance of salmon and steelhead. Approximately 80% of M&E efforts are dedicated to spawner surveys (redd counts) and screw trap operations. A single pass spawner survey ranges from 50 river miles for fall chinook to over 130 river miles for steelhead. Spawner survey results are presented for 2000-2003. GPS documentation of redds began in 2003. Two screw traps are fished throughout the year and a third is fished seasonally. Preliminary estimates of the flow/entrainment relationship indicate a 5% catch rate at 2100 CFS and 20% at 700 CFS at the Lyle Falls trap. Other monitoring activities consisted of habitat surveys, temperature and water quality monitoring, sediment sampling, and streamflow measurements. Habitat surveys were conducted using TFW methodology, including large woody debris, habitat unit area, and channel dimension surveys. A total of 67 sites on 39 streams have been surveyed since 1996. Six sites on 4 streams were surveyed in 2003. Ongoing temperature monitoring has been conducted using thermographs at 37 sites on 22 streams. Relational databases have also been developed for habitat and temperature data. Ongoing sediment sampling and streamflow monitoring has also been conducted at numerous sites.

OBJECTIVE	TASK
1. Continue existing efforts to gather baseline information on habitat quantity and quality, and the	a. Perform juvenile salmonid population surveys: Determine the spatial distribution and relative abundance of salmonids throughout the basin to guide design of initial enhancement program.

demographics, life history and abundance of Klickitat spring chinook and steelhead, and other species of interest.	
	b. Study of feasibility of using screw traps for long-term monitoring of juvenile production. Determine the feasibility of using screw traps to monitor long term juvenile salmonid production in the upper and lower Klickitat River
	c. Perform spawning ground surveys (redd counts): Monitor spatiotemporal redd distribution of spring and fall chinook, coho, and steelhead in the basin and collect carcass data
	d. Perform scale analysis: Determine age and stock composition of juvenile and adult salmonid stocks.
	e. Perform habitat inventory aerial videos and ground truthing: Measure critical environmental variables by analyzing data extracted from aerial videos and verified by ground examinations.
	f. Analyze sediment impacts on habitat: Monitor stream sediment loads associated with the operation of dams and other anthropogenic factors (e.g., logging, agriculture and road building) affecting streams basin wide.
	g. Perform fish passage obstruction inventory assessment: Locate and describe existing salmonid fish migration barriers.
	h. Perform water quality inventory: Record water quality measurements at each habitat survey reach on a seasonal basis.
	i. Perform habitat inventory and analysis: Collect data on existing and historical fish populations, habitat and passage conditions throughout the basin for eventual use in the modeling runs that will generate initial enhancement plans.

Project 199705600: Klickitat Watershed Enhancement Project, Will Conely, *Confederated Tribes and Bands of the Yakama Indian Nation*

The overall goal of the Klickitat Watershed Enhancement Project (KWEP) is to restore watershed health to aid recovery of native salmonid stocks in the Klickitat subbasin. Implemented by the Yakama Nation Fisheries Program (YNFP) and funded by BPA, KWEP addresses Yakama-Klickitat Fisheries Project (YKFP) as well as Columbia Basin Fish & Wildlife Program habitat goals. KWEP is the principal ongoing funding mechanism for salmonid habitat restoration in the subbasin and has been integral to securing outside funding matches exceeding $1.6 million via public and private partners as well as directly to the YNFP. Cooperation between KWEP, YKFP Data Management, and YKFP Monitoring and Evaluation projects has been critical to achieving data management and monitoring objectives. Actions addressing restoration and protection objectives target stream reaches and watersheds supporting steelhead (ESA-listed as “Threatened”) and/or spring chinook. KWEP-related activities since the 2000 Provincial Review, have included creation and acquisition of GIS data, development of a relational habitat database, development of geographic priorities, correction of 3 fish barriers, collection and planting of over 12,000 cuttings along 10,000’ of bank, fencing of 3000’ of stream, two livestock water developments, streamflow monitoring at 13 sites, assessment of 13 miles of stream and over 80 miles of roads, and initiation of

construction activities on two in-channel restoration projects. Through these efforts, available habitat has increased for spawning, juvenile rearing, velocity refugia, passage, and adult holding.

OBJECTIVE	TASK
1. Identify and prioritize reaches for restoration activities	a. Compile existing data and identify gaps.
	b. Develop plan to fill data gaps and incorporate into existing data.
	c. Prioritize reaches for restoration and adapt based on monitoring results
	d. Determine ownership status of targeted reaches and recruit landowner cooperation
2. Protect, restore, and enhance priority reaches to increase riparian, wetland, and stream habitat values.	a. Develop site-specific restoration plans
	b. Identify and pursue alternate funding sources
	c. Engage in cooperative agreements with public and private entities
3. Monitor habitat conditions to ensure desired habitat levels are reached and maintained.	a. Develop site-specific and landscape level monitoring plans.
	b. Modify monitoring plans based on effectiveness.
	c. Perform baseline inventory with periodic revisitation to measure habitat response to management.
	d. Conduct fisheries and/or wildlife inventories to assess response to habitat

Project 199304000: Fifteen Mile Creek Habitat Restoration Project, Brian Benjamin and Steven Springston, *Oregon Department of Fish and Wildlife*

The Fifteenmile Creek Habitat Project is designed to restore and/or improve fish habitat, riparian habitat diversity, stream shading, water temperatures, channel morphology, water quality, fish passage, and irrigation water screening. The goal of the project is to increase natural production of the eastern most run of wild winter steelhead in the Columbia River Basin, by providing improved spawning and rearing habitat.

The Fifteenmile Creek project is funded by Bonneville Power Administration. Cooperators include more than 70 private landowners, United States Forest Service, Wasco County Soil and Water Conservation District, Natural Resource Conservation Service, NOAA Fisheries, US Fish and Wildlife Service, and the Confederated Tribes of Warm Springs Reservation of Oregon.

The project maintains over 109 miles of riparian fencing, protecting 54.9 miles of stream. More than 900 instream habitat structures have been installed and are maintained within the Fifteenmile Creek Basin as well as five fish passage structures and numerous irrigation water screens.

Project monitoring is accomplished through photopoint documentation at sites of previous fence construction. Stream temperature data is collected at twelve locations in the basin to monitor long term

temperature trends. Annual spawning surveys are conducted along with smolt trapping to monitor steelhead use and estimate smolt production.

OBJECTIVE	TASK
1. Perform ongoing operation and maintenance of completed habitat treatment measures.	a. Inspect and evaluate riparian protection fences.
	b. Repair and maintenance of riparian protection fences.
	c. Elimination of high maintenance actions fence
	d. Inspect and evaluate instream habitat and bank stabilization structures.
	e. Repair and maintenance of instream habitat and bank stabilization structures.
	c. Elimination of high maintenance action items, instream structures

Project 200102000: Fifteen Mile Creek Riparian Fencing/Stream Survey, Brian Benjamin and Steven Springston , *Oregon Department of Fish and Wildlife*

The Fifteenmile Riparian Fencing/ Physical Stream Survey Project began in July, 2001 with the primary purpose of: 1) Construct 10 miles of new riparian fence per year to complete the riparian exclusion portion of the Fifteenmile Creek Riparian Habitat Project that was eliminated from the Boneville Power Administration contract budget in 1996; 2) Complete a physical stream survey of the entire Fifteenmile Creek Basin using standardized survey protocol.

Cooperative agreements are negotiated with private landowners where ODFW provides all materials and labor to construct riparian fencing and the landowner assumes all operation and maintenance of constructed fence furthermore agreeing not to intentionally graze livestock within the protected corridor for a period of 15 years. The project sponsors have successfully constructed 30.6 miles of new fencing since the project originated in 2001. Much of this fencing was placed in areas to provide continuouis fencing for long portion of the upper basin, protecting over 15 miles of stream.

The Stream Survey is conducted by the ODFW Research office in Corvallis, OR. Survey crews have been actively working for the past three field seasons and anticipate approximately 18 miles remaining. The reports for the survey are expected to be complete by March, 2005.

OBJECTIVE	TASK
1. Plan and prepare for fence construction	a. Identify project work sites.
2. Implement construction of riparian protection fence	a. Purchase 10 miles of fence construction materials
	b. Construct 10 miles of riparian protection fence
3. Conduct physical stream survey on approximately 90 miles of stream	a. Conduct stream survey

Project 200102100: Fifteen Mile Creek Riparian Buffers, Ron Graves, *Wasco County Soil and Water Conservation District*

The Fifteenmile Riparian Buffer Project is focused on providing technical assistance for developing and implementing riparian buffer systems in northern Wasco County, predominantly Fifteenmile Creek watershed. Specific goals established for the first 3 years of the project have been exceeded. Those goals were to develop 36 plans for USDA buffer contracts on 40 miles of streams covering 872 acres. With work still in progress and three months remaining in that time period, plans have been completed for 62 buffer contracts on 68 stream miles covering 2,065 acres. The work has been done under budget with $181,360 in BPA funding leveraging over $3.5 million in USDA funds. This project has dramatically accelerated implementation of buffer contracts. An implicit goal of the project was to deal with an initial back log of 38 buffer sign ups. Despite the successful technical effort, as of January 22, 2004 a total of 39 sign-ups remain on the list with planning in progress or pending.

OBJECTIVE	TASK
1. Implement 36 new CRP/CREP riparian buffer system agreements with participating landowners on 40 miles of anadromous stream to improve 872 riparian acres	a. Meet with interested landowner on site and assess eligibility of stream reach for program. (10%)
	b. Obtain landowner sign-up for program (2%)
	c. Develop CRP/CREP plan for review and approval, including planting prescriptions, fencing design, and other practice elements as necessary (70%)

Project 200102200: Fifteen Mile Creek Orchard Pesticide Pollution Risk Study, *Wy'East Resource Conservations and Development Area*

A project to prevent pesticide pollution from orchard operations in the Fifteenmile Sub-basin, 17070105. The Wasco County Fruit and Produce League orchard growers objective is to implement Integrated Fruit Management (IFP) practices with special attention on pest management. Growers will reduce the use of broad-spectrum pesticides replaced with new generation less toxic pesticides. The new generation pesticides reduce the risk of pollution to land and aquatic resources affecting salmon and other endangered species. The use of less toxic pesticides requires growers to be more precise in the timing of the application of these pesticides because they don't persist in the environment like broad-spectrum pesticides. Growers will use a network of remote weather station in orchards to collect precise weather data to calculate pest and disease degree-day models for specific orchard sites. Orchard growers will use the degree-day models and data to make better decisions to make precise timed application of new generation pesticides. A second component of the project will conduct research at Mid-Columbia Agriculture Research and Extension Center to reduce spray drift utilize low-volume applications of pesticides for insect and disease control in older tree fruit orchards.

OBJECTIVE	TASK
1. Establish & Operate Weather Stations	a. Purchase equipment & install

	b. Validate degree-day model
2. Research Effectiveness Tower Sprayer	a. Research & evaluate
3. Water Quality Monitoring	a. Implement water quality monitoring
4. Project Monitoring & Evaluation	a. Follow-up with growers to evaluate progress

Project 200102500: Salmonid Production in Restored Rattlesnake Creek, Patrick Connoly *U.S. Geological Survey, Jim White, Underwood Conservation District, and Gregg Morris Confederated Tribes and Bands of the Yakama Indian Nation*

Our multi-agency project was designed to document existing habitat conditions and fish populations in Rattlesnake Creek in preparation for reintroduction of anadromous salmonids above Condit Dam. This White Salmon River dam was constructed in 1913 and is slated for removal in 2006. Objectives of the study are: 1) Characterize stream and riparian habitat conditions in Rattlesnake Creek drainage, and 2) Determine the status of fish populations in the Rattlesnake Creek drainage. Extensive habitat and fish data have been collected, which have and will be used to prioritize habitat restoration efforts and to track changes as restoration efforts are implemented and as anadromous salmonids are reintroduced. Results indicate that habitat conditions are likely stressful for salmonids in the summer (high temperature, low flow) and winter (high peak flows, low woody debris), but that a robust fish population composed of few fish species persists. An important linkage for salmonids between lower Rattlesnake Creek and White Salmon River has been documented. A highly successful blend of collaborators and cooperators has been assembled. Much value has been added by collaborations with NOAA, USFWS, USFS, and WDFW. Gaining partnerships with private timber companies and landowners has been essential to our success.

OBJECTIVE	TASK
1. Characterize stream and riparian habitat conditions in Rattlesnake Creek drainage. [UCD, YN, USGS]	a. Measure water quality, water quantity, stream habitat, and riparian conditions. [UCD, YN, USGS]
	b. Describe geomorphology of the watershed. [UCD]
	c. Determine background levels of stable carbon and nitrogen isotopes in the Rattlesnake Creek drainage. [UCD]
2. Determine the status of fish populations in the Rattlesnake Creek drainage.	a. Derive estimates of salmonid population abundance. [YN, USGS]
	b. Determine fish species composition, distribution, and life history attributes within the watershed. [YN, USGS]
	c. Determine existing kinds, distribution, and severity of fish diseases in the watershed. [USFWS, YN, USGS]
	d. Obtain and archive tissue samples in a non-lethal manner for possible future genetic analysis. [YN, USGS]
3. Use the collected habitat and fisheries information to help identify and prioritize areas in need of	a. Estimate current and potential carrying capacity for rearing stages of juvenile salmonids (out-year work). [YN, USGS]

restoration.	
	b. Conduct a limiting factor analysis on the combined fish and habitat data (out-year work). [YN, USGS]

Project 198805303: Hood River Production Program, Mick Jennings, *Confederated Tribes of the Warm Springs Reservation of Oregon*

The goals of the Hood River Production Program or HRPP (includes M&E, Habitat and Parkdale O&M projects) are to 1) re-establish naturally sustaining spring chinook salmon using Deschutes stock, 2) rebuild naturally sustaining runs of summer and winter steelhead, 3) maintain genetic characteristics of the populations, 4) protect high quality habitat and restore degraded fish habitat, and 5) provide harvest opportunities for tribal and non-tribal fisheries. Project planning began in the late 1980's and implementation began in 1994. Part of the HRPP included capital construction work that delayed some implementation features. The M&E project is co-managed with Oregon Department of Fish and Wildlife and parts of the project are divided up to share responsibilities, provide efficiency, and avoid duplication.

Acclimation is used to improve tributary homing and hatchery smolt survival. Spring chinook and summer steelhead are acclimated and released at two sites in the West Fork where the natural populations reside. Winter steelhead and spring chinook are acclimated and released at the Parkdale Fish Facility in Roger Spring Creek, tributary of the Middle Fork. A sand settling pond operated by East Fork Irrigation District is used to acclimate winter steelhead that are subsequently released into the East Fork. Total numbers of acclimated hatchery fish in the Hood River subbasin include 40,000 summer steelhead, 50,000 winter steelhead and 125,000 spring chinook. Screw trap catch information has shown a much higher percentage outmigration of acclimated compared to unacclimated fish. Also, it appears that hatchery adults, once they pass Powerdale Dam, home back to the tributary of where they were acclimated.

Project monitoring of spring chinook has included: 1) forcasting a pre-run population estimate for the Hood River, 2) setting in-river tribal fisheries during years of adequate abundance, and monitoring success, and 3) conducting annual spawning surveys. Since Deschutes stock adult spring chinook began returning to the Hood River in the mid-90's only two years where abundance was adequate, has allowed a tribal fishery. Spawning surveys have been conducted primarily in the West Fork since 1997. The objectives are to document distribution and abundance, spawn timing and assess prespawning mortality. The surveys have shown the upper West Fork near the Jones Creek acclimation site has the best spring chinook spawning habitat. Spawning timing has peaked in early to mid-September.

Other project monitoring includes conducting physical aquatic habitat surveys on a few tributaries that were not included in the 1993-94 ODFW surveys. These surveys are useful not only in assessing condition of the habitat, but also in identifying new, potential habitat projects. Also, water temperatures have been monitored at seven sites since the project was implemented in the late 1980's. The information has been used for several purposes including assessing habitat quality, providing information for DEQ's TMDL work, and documenting findings in the Subbasin Plan and other reports.

Selected streams in the Hood River valley have been part of a study by DEQ to detect pesticides and document their level of use. The BPA project has monitored this work, has provided some cost share funds and has also secured other grants to support this study. The objectives of the study are to determine concentrations of organophosphates and determine the associations with macroinvertebrates and steelhead biomarkers. Early findings have shown concentrations above the chronic water quality standards in some tributaries.

A scientific based review of the Hood River projects was recently completed by an independent consulting firm, Steve Cramer and Associates. Purpose of the review was to determine if project goals and actions were achieved, look at critical uncertainties for present and future actions, determine cost effectiveness, and

choose remedies that would increase program success. Several key issues were identified and are currently being discussed by the co-managers. Some of the issues involve (1`) carrying capacity (2) spring chinook performance and straying (3) size of the hatchery supplementation program (4) potential steelhead residual impacts (5) protection of instream flow and (6) irrigation diversion screening improvements.

Evaluation of performance features of spring chinook reared in Pelton Ladder has been an ongoing activity. Annual winter snorkel surveys in the ladder cells were used to document mortalities associated with BKD and other diseases. Smolt quality has varied from year to year due to an assortment of problems including disease, inability to control juvenile growth once they enter the cells, and handling problems associated with loading Hood River destined smolts from the ladder cells. It is likely smolt quality has had some impact on smolt to adult survival of Hood River spring chinook.

OBJECTIVE	TASK
1. Determine abundance, distribution, and life history patterns of anadromous and resident fishes in the Hood River subbasin.	a. Estimate juvenile rearing distribution of anadromous and resident species.
	b. Estimate rearing densities or relative abundance of juvenile anadromous salmonids and resident trout in selected reaches.
	c. Estimate spatial distribution or rearing juvenile anadromous salmonids and resident trout.
	d. Estimate selected morphometric characteristics of resident trout (e.g. mean fork length, mean weight).
	e. Evaluate if acclimation facilities have significantly increased numbers of hatchery smolts leaving the Hood River subbasin.
	f. Estimate and compare median date of outmigration for naturally produced and acclimated hatchery produced smolts.
	g. Evaluate significance of "residualism" using electrofishing and snorkel surveys.
	h. Determine if acclimated hatchery spring chinook salmon adult returns distribute throughout the West Fork, Middle Fork, and mainstem; and utilize primary spawning areas.
	i. Determine if acclimated smolts have a significantly higher smolt to adult survival rate in relation to direct released smolts.
	j. Coordination of all monitoring and evaluation activities. Provide informational reports to agencies and public on project activities. Prepare BPA annual report.
2. Identify the population genetic structure, systematics, and distribution of genetically unique steelhead, cutthroat, and resident trout populations in the Hood River subbasin.	a. Coordinate and provide support to conduct laboratory work on the electrophoretic and mtDNA analysis. Work will be completed by University of Montana, contracted by ODFW.
3. Develop fish culture procedures for steelhead and spring chinook to minimize future genetic impacts to	a. Periodically re-evaluate the HR/PLPP Management Plans. With ODFW, complete a steelhead and spring chinook salmon Hatchery and Genetic Management Plan (HGMP) for the Hood River to

the wild gene pools in the Hood River subbasin.	minimize future genetic impacts.
4. Achieve an interim run of 850 jack and adult spring chinook salmon to Hood River, with a spawner escapement of 400 jacks and adults.	a. Volitionally release acclimated hatchery smolts into the Hood River subbasin.
	b. Coordinate clipping and coded-wire tagging operations for hatchery releases into the Hood.
5. Achieve an interim run of 2,340 summer steelhead to Hood River, with a spawner escapement of 1,000 (500 wild and 500 hatchery) Hood River stock.	a. Volitionally release acclimated hatchery smolts into the Hood River subbasin.
	b. Coordinate clipping and coded-wire tagging operations for hatchery releases into the Hood.
6. Achieve an interim run of 2,785 winter steelhead to Hood River, with a spawner escapement of 1,000 (500 wild and 500 hatchery) Hood River stock.	a. Volitionally release acclimated hatchery smolts into the Hood River subbasin.
	b. Coordinate clipping and coded-wire tagging operations for hatchery releases into the Hood.
7. Determine the amount and condition of habitat available to anadromous salmonids in the Hood River subbasin.	a. Monitor selected environmental factors that may effect carrying capacity.
	b. Estimate the quantity and quality of habitat available for spring chinook salmon and summer and winter steelhead.
	c. Re-evaluate and refine smolt carrying capacity.
	d. Complete physical habitat surveys.
8. Restore and recover habitat lost as a consequence of man's activities in the Hood River subbasin.	a. Plan, coordinate, and implement habitat projects from the Hood River Fish Habitat Protection, Restoration, and Monitoring Plan working document. Seek cost sharing funds for all projects.
	b. Continue to update and modify the Hood River Fish Habitat Protection, Restoration, and Monitoring Plan.
9. Determine if the pesticides used and entering surface waters in the Hood River subbasin are adversely affecting steelhead.	a. Determine if there is toxicity associated with surface waters in the Hood River subbasin.
	b. If there is toxicity, determine if the toxicity is caused by pesticides.
10. Review measures of relative	a. Utilize past data from several broods of ladder reared and RBH

"smolt quality" between fish reared in Pelton Ladder (old and new sections) and fish reared at Round Butte Hatchery (RBH), as inference that ladder-reared smolts may have superior "fitness" for survival.	reared smolts. Compile and analyze data to provide a comparison of relative "fitness" between the groups of fish.
.	b. Determine and compare smolt survival and condition of fish in Pelton Ladder.
	c. Summarize and report jack and adult life history and morphological data on Deschutes River stock spring chinook salmon released from Pelton Ladder and RBH, 1994-1999 broods.
	d. Compile, summarize, and report smolt to adult survival rates of similar sized smolts released at the same time from RBH and Pelton Ladder (Pond H-1 vs. cells 1,2 and 6; pond H-2 vs. cell 3), brood years 1994-1996.
11. Conduct controlled tests at Pelton Ladder to define effective smolt production criteria that maximizes adult returns.	a. Compile, summarize, and report smolt to adult survival of fish transferred to Pelton Ladder in September and November, brood years 1994-1996.
	b. Compile, summarize, and report smolt to adult survival rates of small (12/lb at release; cell L-3) and medium (8/lb at release; cell L-6) size smolts reared at Pelton Ladder, brood years 1994-1996.
	c. Compile, summarize, and report smolt to adult survival rates of small (12/lb at release; pond H-2) and medium (8/lb at release; pond H-1) size smolts reared at RBH, brood years 1994-1996.
	d. Document fish culture activities that occur at RBH and Pelton Ladder during studies.
	e. Coordinate (assist) with RBH staff in sampling fish at the hatchery and ladder for condition prior to release (weight, length, size/lb., and clipping and coded-wire tag evaluations).
	f. Coordinate (assist) with RBH staff in retrieving coded-wire tags from jack and adult spring chinook salmon study fish.
12. Measure survival of smolts produced in the (new) modified sections of Pelton Ladder and compare to (old) established pre-modification survival rates.	a. Compile, summarize, and report smolt to adult survival of cells 1 and 2 (old section) with cell 6 (new section), brood years 1994-1999.
	b. Calculate and compare survival rates of historic smolt releases from the old ladder section and hatchery.
13. Evaluate the effective production potential of the currently, unused area in Pelton Ladder.	a. Summarize adult returns provided by the new modifications to Pelton Ladder to gain inferences about the potential value of further extending production in the ladder.

Project 198804304: Hood River Production Program, Erik Olsen, *Oregon Department of Fish and Wildlife*

The ODFW Monitoring and Evaluation (M&E) project is one component of the Hood River Production Program (HRPP). The M&E project's primary objective is to evaluate the HRPP relative to it's defined biological fish objectives. A secondary function of the M&E project is to evaluate the HRPP's potential impact on indigenous populations of fish, and to develop operational guidelines for minimizing any negative impact the HRPP might have on indigenous populations of fish. The M&E project annually estimates subbasin smolt production and non-tribal harvest of anadromous salmonids. Radio telemetry studies were conducted to determine spatial distribution of salmonid populations, and sampling sites were electro-shocked to estimate juvenile rearing densities. Genetic samples were collected from steelhead to determine the fitness of hatchery broodstock and to evaluate the interaction between wild and hatchery salmonids. The biological fish objectives for the HRPP were based on various assumptions about historical salmonid populations, subbasin carrying capacity, and smolt-to-adult survival rates. An analysis of data collected from 1991-2003 suggest that those assumptions should be re-evaluated. The analysis was independently corroborated by a private consultant funded by BPA to conduct an independent review of the HRPP. The ODFW and CTWSRO are currently re-evaluating the HRPP's biological fish objectives.

OBJECTIVE	TASK
1. Determine abundance, distribution, and life history patterns of anadromous and resident fishes in the Hood River subbasin.	a. Estimate numbers of downstream migrant wild steelhead; natural spring chinook salmon; and hatchery summer and winter steelhead smolts leaving the Hood River subbasin.
	b. Estimate relative abundance of non-supplemented species of downstream migrant salmonids leaving the Hood River subbasin.
	c. Assist personnel on BPA project #1993-019-00 in enumerating and counting all species of migratory jack and adult salmonids and trout (i.e., bull and cutthroat trout) escaping to Powerdale Dam.
	d. Estimate, by brood year, escapements of wild, natural, and hatchery produced summer and winter steelhead, spring and fall chinook salmon, and coho salmon to Powerdale Dam.
	e. Estimate age structure of downstream migrant wild rainbow-steelhead pre-smolts and smolts.
	f. Estimate temporal distribution of downstream migrant steelhead smolts.
	g. Estimate selected morphometric characteristics of downstream migrant wild steelhead smolts; including mean fork length and condition factor.
	h. Estimate selected morphometric characteristics of downstream migrant spring chinook salmon, coho salmon, migratory bull trout, and cutthroat trout smolts; including mean fork length and condition factor.
	i. Assist personnel on BPA project 1988-053-03 to estimate selected morphometric characteristics of Hood River stocks of hatchery summer and winter steelhead smolts; including mean fork length and condition factor.
	j. Estimate the age structure of wild, natural, and subbasin hatchery produced jack and adult migratory anadromous salmonids.

	k. Estimate the temporal distribution of migration to the Hood River subbasin of wild, natural, and hatchery produced jack and adult migratory anadromous salmonids.
	l. Determine the spatial distribution of Hood River stock adult hatchery winter steelhead in the Hood River subbasin.
	m. Estimate selected morphometric characteristics of wild, natural, and hatchery produced jack and adult migratory anadromous salmonids; including mean fork length and mean weight.
	n. Estimate selected meristic characteristics of wild, natural, and subbasin hatchery produced jack and adult migratory anadromous salmonids; including mean fecundity (i.e., summer and winter steelhead) and sex ratios.
	o. Estimate harvest of hatchery summer and winter steelhead below Powerdale Dam.
	p. Estimate harvest of natural and hatchery spring chinook salmon below Powerdale Dam.
	q. Collect scale samples from summer and winter steelhead and spring chinook salmon harvested below Powerdale Dam.
	r. Estimate age structure of hatchery summer and winter steelhead and natural and hatchery spring chinook salmon harvested below Powerdale Dam.
	s. Collect coded wire tags from harvested marked anadromous salmonids.
	t. Estimate mean fork length and sex ratio of wild, natural, and hatchery summer and winter steelhead and spring chinook salmon harvested in the Hood River subbasin, by run year and brood year.
	u. Summarize coded wire tags recovered from summer and winter steelhead and spring chinook salmon.
	v - Review and comment on drafts of product deliverables prepared by other HRPP participants.
	w. Coordinate with other inter- and intra- agency activities which effect the ODFW's (i.e., M&E) component of the HRPP.
	x. Facilitate the coordination and integration of ODFW's M&E component of the HRPP with the various other components of the HRPP being implemented by other program participants.
	y. Prepare an annual report summarizing biological data collected by ODFW during FY 2000.
	z. Review and comment on the FY 2000 annual report prepared by the Confederated Tribes of the Warm Springs Reservation of Oregon.
	aa. Continue activities required for project administration including: preparation of sampling plans, inventory reports, and SOW's; maintenance of financial records, purchasing of supplies;

	maintenance of field equipment, and budget tracking.
2. Identify the population genetic structure, systematics, and distribution of genetically unique steelhead, cutthroat, and resident trout populations in the Hood River subbasin.	a. Collect tissue samples for genetic analysis.
	b. Describe the systematics, population structure and distribution of wild Oncorhynchus mykiss: Tissue samples will be submitted to several DNA analyses including micro satellites, SIM, and PINE analyses.
	c. Describe the systematics, population structure and distribution of wild Oncorhynchus clarki: Tissue samples will be submitted to several DNA analyses including micro satellites, SIM, and PINE analyses.
	d. Describe the impacts of past hatchery programs and initiate the development of guidelines to control risks and maximize benefits of the Hood River Production Program.

Project 198802100: Hood River Fish Habitat, Mick Jennings, *Confederated Tribes of the Warm Springs Reservation of Oregon*

The Project goal is to protect, restore, and enhance the health of the Hood River ecosystem to ensure continued viability of aquatic and terrestrial wildlife populations. Habitat implementation efforts between 1996 and 2000 consisted of a few early action projects, however, the main focus was on completing the Hood River Watershed Assessment and the Subbasin Summary. During the Provincial Review (Sept., 2000), the Subbasin Summary provided the ground work for setting up a BPA funding base for the majority of habitat projects since then. The HR Watershed Action Plan, completed in 2002, identifies and prioritizes projects and is the guiding document for which CTWSRO and other constituents select individual projects. The highest priority for habitat restoration is improving juvenile and adult fish passage at irrigation diversions. Ranked closely behind in priority is improving water quality.

Some of the early action projects included small livestock fencing exclosures along important tributaries and improving passage at a small diversion on Tony Creek. However, two large scale fish screening projects were completed on East Fork Irrigation District and Farmers Irrigation District diversions. The 129 cfs diversion on the East Fork has been unscreened for at least 50 years and annual fish salvage efforts in irrigation canals has shown juvenile losses to be substantial. The new Farmers Irrigation District horizontal screen replaces two ineffective rotary drum screens in their 85 cfs canal on the mainstem.

Current projects continue to focus on fish passage and water quality issues. Two projects, Powerdale Dam decommissioning/removal plan and the East Fork Central Lateral Piping Project, are both large and complex, but will provide multiple fishery benefits and water quality improvements. Three smaller scale projects recently completed or near completion involve improving fish passage through culverts and eliminating in-channel diversions and settling ponds.

To date, about 18 percent of the projects identified in the Hood River Watershed Action Plan have been completed. Upcoming projects that are currently in the planning stages include two fish screen projects and one water savings project.

OBJECTIVE	TASK
1. Restore and recover habitat lost as a consequence of man's activities in the Hood River subbasin (see Hood River / Fifteenmile Creek Umbrella proposal 1-3, strategy g - FY 2000 process)	a. Describe habitat constraints: review watershed assessments and subbasin plans, existing biological data, land management regulations, and current production and harvest management practices.
	b. Identify habitat improvement projects; describe benefits associated with each projects; and prepare a prioritized list of habitat improvement projects from the Hood River Fish Habitat Protection, Restoration, and Monitoring Plan.
	c. Plan and develop habitat improvement projects.
	d. Implement habitat improvement projects. See subcontractors listed in the itemized estimated budget below.
	e. Monitor and evaluate the physical and biological recovery associated with the habitat improvement projects.
	f. Coordination and administration oversight.