

Issue paper: Master plan for Northwest Oregon Hatchery Project

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I. Introduction

The Master Plan, submitted by the Nez Perce Tribe (NPT), is intended to provide information for a plan to artificially incubate and rear spring chinook salmon populations in the Imnaha and Grande Ronde rivers. These populations are listed as threatened under the Endangered Species Act (ESA) and are at high risk of extinction. The Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, and Oregon Department of Fish and Wildlife (ODFW), are co-managers of the current preservation/conservation and restoration programs for Imnaha and Grande Ronde spring chinook salmon. These programs currently are using conventional and captive broodstock techniques to meet their intended purposes. These programs redirect production occurring under the Lower Snake River Compensation Plan (LSRCP) from mitigation to preservation/conservation and restoration. Both the Imnaha and Grande Ronde preservation/conservation and restoration programs are described in ESA Section 10 permit applications and the co-managers refer to the fish production from these programs as the Currently Permitted Program (CPP).

Recently, co-managers have determined that it is impossible to produce the CPP at Lookingglass Hatchery, the LSRCP facility intended for production, and that without additional facilities, production must be cut from these conservation and restoration programs. The Master Plan describes alternatives considered to meet the facility needs of the CPP so the preservation/conservation and restoration program can be fully implemented.

Co-managers considered three alternatives: modify Lookingglass Hatchery; use existing facilities elsewhere in the Basin; and use new facilities in conjunction with a modified Lookingglass Hatchery. Each alternative was evaluated based on criteria developed for rearing fish for a conservation program. After this review, the Nez Perce Tribe determined the only alternative that meets the needs of the program is the alternative to use new facilities in conjunction with a modified Lookingglass Hatchery.

II. Relationship to the Council's Fish and Wildlife Program

The initial measure for establishing the Northeast Oregon Hatchery was originally identified for funding in the Northwest Power Planning Council's (Council) 1987 Columbia River Basin Fish and Wildlife Program. First steps in this process began in 1988 when the NWPPC authorized the Nez Perce Tribe (NPT), the Bonneville Power Administration (Bonneville) and the Oregon Department of Fish and Wildlife (ODFW) to submit a master plan for review

This project is currently authorized by Columbia Basin FWP (NWPPC 1994) Measure 7.4L1 which directs the Bonneville to "fund planning, design, construction, operation, maintenance and evaluation of artificial production facilities to raise chinook salmon and steelhead for enhancement in the Hood, Walla Walla, Grande Ronde and Imnaha rivers and elsewhere."

As part of the Council's Fish and Wildlife Program, the Northeast Oregon Hatchery Program (NEOH) was the initial planning effort by the fishery co-managers to restore anadromous fish runs in Northeast Oregon. Part of NEOH planning was an effort to restore spring chinook into the Grande Ronde Subbasin. After a time this effort evolved into one of the 15 high-priority supplementation projects approved by the Council in March 1996. Unfortunately, co-managers could not agree on an appropriate production strategy for Grande Ronde spring chinook, given the ESA issues, Oregon's Wild Fish Policy, Lower Snake River Compensation Plan requirements, Treaty and trust responsibility issues, and other considerations. An independent scientific panel was formed and asked to review the proposed strategies and provide a determination on what would be appropriate. The panel recommended that an endemic broodstock be developed for supplementation uses in the Grande Ronde Subbasin.

In discussions between the co-managers on how to implement an endemic broodstock approach for Grande Ronde spring chinook, two strategies were proposed: captive broodstock and conventional broodstock. The co-managers agreed on the strategy for implementation of the captive broodstock component and initiated an emergency program in 1994. The captive broodstock component became the Grande Ronde Captive Broodstock project; the project the Council approved for emergency funding in the fall of 1997. It consists of an expansion at Bonneville Hatchery for the needs of the captive broodstock component, and improvements to Lookingglass Hatchery. As this project evolved, other projects under NEOH evolved with it and were modified to encompass the development of the conventional broodstock component of the overall endemic broodstock approach for Grande Ronde River, which was initiated in 1997. The needs for the endemic component became the Grande Ronde Basin Endemic Spring Chinook

Supplementation project and was approved by Council on June 10 1998. The approved action recommended funding for the construction of adult collection weirs and juvenile acclimation facilities at three sites ? Catherine Creek, Upper Grande Ronde River and Lostine River.

In 1998, the NPT focused on how they might more realistically phase in rebuilding goals with limited regional funding and broodstock limitations as it related to the development of the master plan. The original concept for the NEOH Master Plans called for "new" production that would be additional to the LSRCP production currently occurring at Lookingglass Hatchery. However, with the continuing decline of salmon runs and the subsequent overload this caused on Lookingglass (i.e. with the additional burdens placed on the facility), as a tool to forestall extinction of Northeast Oregon chinook, the NPT concentrated their planning efforts on alleviating stress at the facility and restructuring where existing production would occur. The goal was not new production, but address the current levels of production (i.e. currently permitted program) under LSRCP using new and improved techniques.

III. Description of Subbasin and Status of Salmon

The Imnaha River Subbasin is located in northeastern Oregon and encompasses an area approximately 980 square miles. The mainstem Imnaha River flows in a northerly direction for 80 miles from its headwaters in the Eagle Cap Wilderness Area (elevation about 10,000 feet), to its confluence with the Snake River at river mile (RM) 192, (elevation 945 feet). The entire Imnaha Watershed is within the area established for sole Nez Perce occupancy under the Treaty of 1855. The Imnaha River is part of the National Wild and Scenic Rivers System.

The Imnaha River Subbasin once supported healthy runs of spring chinook salmon, approximately 6,700 adults. Returns to the Imnaha River subbasin have declined precipitously during the past three decades. Peak escapement of spring chinook salmon to the Imnaha River was estimated at 3,459 adults in 1957. Recent returns of natural origin fish have declined to levels below 150 individuals.

The Grande Ronde River Subbasin encompasses an area of about 3,950 square miles in the northeast corner of Oregon and a small portion of southeast Washington. The mainstem Grande Ronde River extends 212 miles from its headwaters in the Blue Mountains (elevation 7,700 feet) and the Wallowa Mountains (elevation 10,000 feet) to its confluence with the Snake River in Washington at RM 169 (elevation 820 feet). The subbasin is characterized by two major river valleys, the Wallowa and Grande Ronde, surrounded by rugged mountain ranges. Major tributaries include Joseph Creek, Wenaha River,

Lookingglass Creek, Wallowa River and Catherine Creek.

The Grande Ronde River historically supported diverse and healthy runs of spring chinook salmon. Escapement of naturally produced chinook salmon to the Grande Ronde River was estimated at 12,200 fish in 1957. Historically, the major spring chinook salmon production areas within the Grande Ronde Subbasin were the Minam, Wenaha, Wallowa, Lostine (a tributary to the Wallowa River) and upper Grande Ronde rivers. Present escapement level and recent trends indicate that Grande Ronde spring chinook salmon are in imminent danger of extinction. Progeny-to-parent ratios have been below 1.0 (replacement) for the past eight completed brood years. Current adult escapement levels for the Lostine River have been between 34-152 from 1994 to 1998. Escapement levels of the Wenaha and Minam rivers (designated Wilderness areas with pristine habitat) show similar declining trends. Trend analyses of spring chinook salmon redds in index areas on the Wenaha, Lostine, and Minam rivers illustrate the negative trend in redd counts and the low spawner escapement levels.

IV. Summary of the Proposed Production Project

The Proposed Alternative would construct new facilities and modify existing facilities for a preservation/conservation, integrated restoration production program for spring chinook salmon in the Imnaha and Lostine rivers. These facilities would make it possible to meet the already-approved production program for spring chinook salmon in the Imnaha and Lostine rivers. The proposed alternative includes the following.

- Construction of a new incubation and rearing facility in the Imnaha River and modifications of the existing Gumboot facility to accommodate the Imnaha component of the Lookingglass Hatchery production.
- Construction of a new incubation and rearing facility in the Lostine River to accommodate the Lostine component of the Lookingglass Hatchery production.
- Modification of Lookingglass Hatchery to accommodate the Catherine Creek and Upper Grande Ronde component of the Lookingglass Hatchery production.

A. Project management structure and process

The proposed incubation and rearing facilities on the Imnaha and Lostine rivers would be managed in conjunction with the existing adult collection/juvenile acclimation and release facilities, with the intent to restore and increase natural production of anadromous fish resources in the Imnaha River and the Lostine River, respectively. Co-managers of the Imnaha and Lostine Complexes would be the Nez Perce Tribe and Oregon Department of Fish and Wildlife. Co-managers agree to work cooperatively to achieve project goals. Co-managers agree to operate

these facilities in a prudent and cost effective manner. The Nez Perce Tribe would function as the lead agency for the Imnaha River and Lostine projects and therefore, would be primarily responsible for planning, operation and maintenance, and monitoring and evaluation of the facilities described in the master plan. Bonneville would be primarily responsible for construction of the facilities.

B. Potential production goals

The production goal for Imnaha spring chinook salmon is 490,000 smolts and the goal for Lostine spring chinook salmon is 250,000 smolts as authorized by NMFS through Section 10 of the ESA.

The CPP reflects the redirection of the LSRCPP program from mitigation to a focus on preservation/conservation and restoration. To develop alternatives to implement full production of the CPP, NPT and ODFW first developed management goals and objectives for the program. The co-managers defined goals as the endpoint toward which effort is directed. Objectives are smaller, measurable steps taken to attain the goal. Objectives are measurable but are not necessarily time-limited. The time necessary to achieve objectives and transition from one goal to the next will depend on improvements made in the major limiting factor for program success - smolt-to-adult survival rates. It is unknown at this time just how long these improvements will take. Current SARs for wild/natural Snake River spring/summer chinook salmon generally average 0.36 percent, with hatchery-reared chinook salmon from Lookingglass Hatchery averaging 0.13 percent. Following are the goals and objectives for the program.

1. The short term goal focus on the preservation/conservation of populations and is assumed to take one to two salmon generations or 5 to 10 years. The short-term goal has two components that attempt to prevent extinction of Imnaha and Lostine spring chinook salmon, and provide potential for recovery once out of basin (smolt-to-adult) survival improves.

The short-term goal has two objectives:

- Maintain an annual escapement of chinook salmon from natural and artificial production of no less than 700 adults in the Imnaha River; and 250 adults in the Lostine River. Time necessary to reach objective ? Imnaha River has met the objective in 3 of the last 5 years. It is expected that the Lostine will reach its objective 4-5 years after implementation of full production.
- Maintain genetic attributes and life history characteristics of the naturally spawning chinook aggregate.

2. The mid-term goal will focus on restoration of the populations. Initiation

of actions to meet the mid-term goal is dependent on results of monitoring and evaluation. The mid-term goal has one part that emphasizes the restoration of the natural populations of Imnaha and Lostine spring chinook salmon above ESA delisting levels and provide an annual sport and tribal harvest.

The mid-term goal has three objectives:

- Achieve an annual escapement of 2,000 adult chinook salmon in the Imnaha (ESA delisting level) and 500 in the Lostine from natural production. The ESA delisting level for the Grande Ronde is 2,500 naturally produced adults of which the Lostine River spawning aggregate is a component.
- Maintain genetic attributes and life history characteristics of the naturally spawning chinook aggregate.
- Provide tribal and sport harvest opportunity consistent with recovery efforts.

3. The long-term goal is the original intent of the mitigation purpose, which would be permanent for the foreseeable future. At this point the program would take on LSRCP program goals. The long-term goal has one part that emphasizes the Imnaha and Grande Ronde spring chinook salmon escapement and harvest to historic levels.

The long-term goal has four objectives:

- Utilize natural and artificial production to provide benefits expected from the Lower Snake River Compensation Plan ? 3,210 adults for the Imnaha River and 1,625 adults for the Lostine River returning annually.
- Maintain natural self-sustaining population of 3,820 in the Imnaha and 1,716 in the Lostine River.
- Maintain genetic attributes and life history characteristics of the naturally spawning chinook aggregate.
- Provide harvest of naturally and artificially produced adults additional to natural spawning, nutrient enhancement, and hatchery broodstock goals.

C. Experimental goals and approach

The master plan outlines a conceptual framework that describes a monitoring and evaluation approach that will help co-managers determine whether they were successful in preserving and recovering chinook salmon in the Imnaha and Lostine rivers. Program success will be gauged primarily by changes in abundance and distribution of the supplemented chinook salmon spawning aggregates. Information gathering strategies

are proposed to monitor and evaluate the results of the Northeast Oregon Hatchery (NEOH) supplementation program specific to the Imnaha and Lostine rivers so that operations can be adaptively managed to optimize hatchery and natural production and minimize ecological impacts. The conceptual monitoring and evaluation plan provides a framework that will guide development of a detailed monitoring and evaluation plan that integrates new activities with ongoing monitoring and evaluation efforts.

The plan is grouped according to three categories: Stock Status, Biological Interactions and the Natural Environment. Stock Status refers to both the hatchery and wild components. This category comprises genetic, life history and population viability subcategories. Monitoring and evaluation activities associated with these subcategories will be directed at detecting genetic and life history differences between wild and hatchery fish and changes in population abundance over time. Biological processes that affect stock status will be investigated under the Ecological Interactions category. This category involves both intraspecific and interspecific interactions, which includes competition, reproduction and disease transmission between wild and hatchery chinook populations and other species of fish. The third category of interest is the natural environment. Abiotic factors capable of influencing or limiting production, abundance and survival of wild and hatchery fish are considered. Streamflow, water temperature and quality and habitat carrying capacity have the potential to affect stock status and program success in the Imnaha and Lostine rivers.

D. Fishery Benefits

Spring chinook salmon populations in the Imnaha and Grande Ronde rivers are at high risk of extinction because of low productivity and a low abundance of spawners. The primary benefit expected from this program is a reduction in the demographic risk of extirpation, which will ensure the persistence of these populations. Although there are inherent risks to wild populations from artificial propagation, the greatest short-term risk to these populations is the risk of extinction. The preservation/conservation and restoration programs described in the master plan would provide an increase in the number of natural spawners to forestall extinction while the primary factors affecting the productivity of these populations are corrected.

Spring chinook salmon restoration in the Imnaha River has demonstrated that the hatchery program has provided a substantial survival advantage above natural rates and has increased the total number of returning chinook salmon adults and number of natural spawners in the basin.

If this program and others are successful at stabilizing and preserving the genetic resources of the Imnaha and Lostine chinook salmon populations, and other factors are addressed to improve productivity, the hatchery programs should help accelerate the restoration of these populations.

Other expected outcomes include ecological and social benefits: increased nutrients in the ecosystem from salmon carcasses, increased potential to achieve restoration and delisting under ESA, improved ability to meet LSRCP mitigation goals if productivity improves, and increased potential to reestablish tribal and sport fisheries. The program will also provide a better understanding of the role supplementation can play in the recovery of chinook salmon populations.

E. Facilities

1. Imnaha

The proposed alternative would construct a new incubation and rearing facility in the Imnaha River Subbasin and modify or expand the existing Gumboot adult collection and acclimation facility to accommodate spawning and potentially egg incubation.

a. Adult Collection Facility

Adults will be collected at the existing LSRCP weir facility at Gumboot Creek. The facility is located approximately 29.5 miles south of Imnaha, Oregon at RM 49 and at an elevation of 3,760 feet. Access is provided by U.S. Forest Service Road 3955. A main power line parallels the Imnaha River at the site. Trapping began at this site in 1982 and the facilities were completed in 1988. The facility was constructed with two weirs (electric and a picketed lead), fish ladder, and adult holding pond, which is also used for juvenile acclimation and release. Adults moving upstream in the Imnaha River are currently impeded by a Daishin floating weir and diverted to the fish ladder. They swim up the ladder and are trapped in an adult holding area until sampled.

Currently, after sampling occurs, fish selected for broodstock are transported 3-4 hours to Lookingglass Hatchery. Under the proposed alternative, fish selected for broodstock will not be transported off station but would be moved into the juvenile acclimation pond on site. Dimensions of the pond are 25'4" x 125' x 5'7". Although the pond was originally constructed to accommodate adult holding as well as juvenile acclimation, it has not performed this function satisfactorily. In addition, the existing weir and fish ladder have not performed their function satisfactorily, which has resulted in an inability to fish the entire run, as well as some adult mortality in 1999. The existing weir is not able to fish effectively during high flows and typically more than a quarter of the adult return passes by the facility before the weir is installed. This is a concern for broodstock collection protocols and monitoring and evaluation of the program. Some modifications will be necessary at the facility. The feasibility of locating a weir to intercept adults elsewhere in the subbasin will be examined during the design phase of this project. The potential for developing a pathogen-free water source to incubate eggs at the facility will also be analyzed during the design phase.

b. Incubation and Rearing Facility

The proposed site is on the Marks property located approximately 6 miles upstream from the town of Imnaha, Oregon at RM 24.25 and at an elevation of approximately 2400 ft. This site was selected from 10 potential sites on the Imnaha through the screening process conducted by the NEOH Technical Work Group.

c. Acclimation and Release Facility

The existing acclimation and release facility at Gumboot does not have sufficient space to accommodate the entire production of 490,000 smolts at one time. As a result, current operations "double-load" or consecutively run two groups of fish through the facility, which reduces acclimation time for each group to about two weeks (preferred acclimation time is about 4 weeks). Co-managers are considering two options under the proposed alternative to address this situation:

- Continue to double-load (acclimate two groups) in the existing facility or direct stream release small groups of fish upstream of the acclimation facility. Since fish will be reared for the majority of their life on Imnaha River water at the new incubation and rearing facility, acclimation in the upper watershed prior to release may not be critical.
- Modify the existing facility (construct additional ponds) or construct new facilities to accommodate full acclimation of the full program.

Co-managers agreed that the most beneficial location for additional acclimation facilities would be upstream of the existing facility because most of the spawning habitat is upstream. However, winter conditions in the Imnaha Subbasin are typically severe, making access and operation of a facility in this location difficult. During the preliminary design phase of this process, the biological benefit of each option will be compared to the cost to determine the preferred option.

2. Grande Ronde

The proposed alternative would construct a new incubation and rearing facility in the Lostine River Subbasin. The existing Lostine River adult collection and acclimation facilities are part of the Grande Ronde Basin Endemic Spring Chinook Supplementation project that was approved by Council on June, 10 1998 and constructed by Bonneville in 1997 and 1998.

a. Adult Collection Facility

Adults would be collected at an existing temporary, picket-style weir installed in the Lostine River approximately one mile upstream of the confluence with the Wallowa River. The weir spans the complete river channel at a near 45-degree angle to river flow.

It consists of tripods constructed from 2" diameter steel pipe, connecting steel stringers, and aluminum pickets. The trap/holding facility consists of a V-trap structure encased on three sides by aluminum panels to create a holding pen. The weir is a movable facility that is installed in April to June of each year and dismantled and removed in September or October. In an effort to collect adults during high flows an auxiliary weir is located approximately 1 mile upstream from the existing facility and being operated as the principal site.

b. Incubation and Rearing Facility

The proposed site for this facility is on the Lundquist property at River Mile 12, at an elevation of about 3,680 feet and approximately 6 miles upriver from the town of Lostine. This site is directly upstream from the preferred site selected during the NEOH screening process of 4 possible sites on the Lostine River. This site is above all irrigation diversions on the Lostine River and is immediately upstream of the Lostine Acclimation facility.

c. Acclimation and Release Facility

The existing acclimation and rearing facility is located on the private property of Stuart Coleman, slightly downstream of the proposed incubation and rearing facility. Smolts will continue to be acclimated at the facility until the incubation and rearing facility is operational. After the incubation and rearing facility is operational, fish can be released directly from their rearing containers. The existing facility may become a component of the incubation and rearing facility or be dismantled.

F. Capital Costs

1. Schedule for Development

Planning so far has cost \$3,162,000. Construction of the Imnaha and Lostine rivers incubation and rearing facilities is estimated to cost \$13,860,000. Annual operation and maintenance costs after all new facilities are fully developed would cost approximately \$928,000. The monitoring and evaluation costs are estimated to cost about \$760,000. These cost figures are based on estimates from Montgomery Watson engineers, biologist, project leaders and are described in the master plan. Cost of preliminary and final designs for the proposed facilities is estimated to be about \$1,964,000.

G. Harvest Management

Salmon destined for the Snake River Basin are not managed as individual stocks until they reach the mouth of the Snake River. Columbia River fisheries recognize and manage all Snake River Basin tributary runs as an aggregate.

Since 1974, tribal and non-tribal commercial fisheries targeting upriver spring chinook occurred only in 1977, although incidental catch does occur in winter fishery targeting sturgeon and steelhead (February 1 ? March 21). Since 1993, incidental catch of upriver spring chinook salmon in these fisheries has averaged 11 salmon annually. Incidental harvest of upriver spring chinook occurring in non-Indian lower river sport and commercial fisheries were limited by the Columbia River Fish Management Plan (CRFMP) to a combined rate of 4.1 percent and in no event was the harvest rate to exceed 5.0 percent. The 4.1 percent upriver chinook harvest limitation allowed mainstem harvest opportunities for lower river stocks that are timed somewhat earlier than upriver stocks in most years. From 1978-1996, the combined incidental harvest of upriver spring chinook in lower river fisheries averaged 2.4 percent of the upriver run; the 5 percent rate was exceeded twice, in 1988 (6.9 percent) and 1990 (5.4 percent).

As described in the CRFMP, the Columbia River treaty tribes? Ceremonial and Subsistence (C&S) harvest of adult upriver spring chinook salmon would not exceed 5.0 percent on runs of 25,000 to 50,000 fish, and would not exceed 7.0 percent on runs of 50,000. Since 1974, Treaty Indian commercial fisheries targeting spring chinook occurred only in 1977. From 1978-96, the total harvest averaged 5.9 percent of the upriver run. The tribes enacted regulations closing all or portions of the spring C&S fishery in 1989 and from 1994-1996. The *U.S. v. Oregon* Technical Advisory Committee (TAC) reported that, with the exception of 1997, the recent five-year (1994-98) average harvest rates for these fisheries have been 5.6 percent of spring chinook salmon.

Because so few fish return to these subbasins, harvest within either subbasin is not considered a limiting factor. Tribal harvest is not significant. Sport harvest of spring chinook has been prohibited in the Imnaha River since 1979 and in the Grande Ronde River since 1973.

V. Key Questions and Issues

1. Concepts

The Council could decide that there are still significant concerns, and risks that are still unacceptable and need to be further addressed at this step level. This could be due to the relationship of this project to Lower Snake River Compensation Plan (LSRCP) and the needs to ensure that the project and the LSRCP Program work closely together on common goals and joint uses of the facilities, or its relationship to other projects (e.g. endemic and captive propagation projects) that have been initiated in the basins. Is there a need for the Nez Perce Tribe to take the lead, during step two, to ensure that the appropriate strategy for facility modifications at Lookingglass Hatchery are made part of this planning effort, and that this effort addresses the other components to the currently permitted program in the subbasins?

The proposal outlined is attempting to improve current hatchery practices through the implementation of NATURES and other hatchery guidelines that attempt to be consistent with the life history of the cultured fish and the environmental conditions of the specific watershed. This concept is based on principles that minimize unintentional human influence on the cultured fish. This seems also to be based on the need to rehabilitate the artificial production initiatives in the subbasins in an effort to assist the natural runs. By targeting natal stream water sources for the new facilities should the NPT emphasize the use of the treated surface water to take full advantage of their efforts to address needs of the life history of the cultured stock and the environmental conditions of the watershed?

The Nez Perce Tribe and the ODFW undertook an intensive planning process using existing knowledge of the habitat and the fish runs. The planning process involved the review of other alternatives and rebuilding strategies. The master plan has focused and elaborated on a proposed alternative. Given this, is there any reason not to move forward with this proposed artificial production initiative? Do the potential benefits from the project outweigh the associated risks? Are the risks associated with doing nothing equal to or greater than what might be expected from the proposed project? Are there other less risky alternatives the fishery managers should consider that would meet their management goals for the spring chinook? Could the production of spring chinook needed to meet the management goals outlined in the master plan be produced somewhere else at less cost and with no substantial increase in risks? Is there some other way to achieve the production objectives (management goals) in the subbasins for spring chinook that is less costly?

2. Genetic Risk

Is there a significant increase in genetic risk(s) to the wild/natural stocks of spring chinook from the proposed alternative? If there are, what other actions to those proposed in the master plan could the fishery managers take to further reduce the genetic risk(s)?

3. Subbasin Planning

The Council anticipates that subbasin plans will be developed over the next three years for the basins in the Columbia River. These plans will be consistent with APR purposes, policies, and recommend actions. The Nez Perce Tribe has addressed many of the principles and guidelines of the Artificial Production Review (APR) into their planning process. Should a decision on this master plan be delayed until there is a comprehensive subbasin planning process, guided in part by basin and province-level goals and objectives, and the overarching policies of the APR?

4. Harvest Management

An important element in any production program should be how artificially produced fish will fit in with existing harvest management constraints and conditions as outlined above. Projections with regards to where, how and when artificially produced fish will be harvested and utilized must be clearly delineated. Examples of questions that could be asked are: Will harvest conditions limit the success of the program? Will contributions to a mixed stock fishery exacerbate an existing problem with wild stocks? How will fish be utilized when harvest rates are low? How will fish be protected when harvest rates are high? How will the fish be harvested in the subbasin, Columbia Basin and ocean? Do the artificially produced fish mesh well with other hatchery programs in the region? Should a harvest management plan should be developed that examines these issues and outlines possible actions under differing conditions?

Northeast Oregon Hatchery Master Plan ? Step 1 Review Process

Week Description

- 1 (April 17, 2000, Monday) NPT/Bonneville submits Master Plan to NWPPC
- NWPPC staff review
- 3 (May 1, 2000, Monday) Bonneville/NWPPC initiates Peer Review
- 4 (May 10, 2000, Wednesday) NWPPC staff Comments regarding Master Plan and draft Issue Paper to Fish and Wildlife Committee (packet)
- 5 (May 16, 2000, Tuesday) NWPPC Fish and Wildlife Committee reviews the Master Plan and draft Issue Paper
- 7 (May 31, 2000, Wednesday) Fish and Wildlife Committee Recommendation to Council (packet)
- 8 (June 7, 2000, Wednesday) NWPPC considers releasing Master Plan and Issue Paper for review and comment
- 11 (June 28, 2000, Wednesday) NWPPC takes comments on Master Plan at Council Meeting
- 12 (July 7, 2000, Friday) Peer Review findings submitted to NWPPC
- 14 (July 19, 2000, Wednesday) NWPPC takes public comments at Council Meeting
- 16 (August 4, 2000, Friday) Due date for all written comments on Master Plan
- 17-19 NWPPC staff prepares a summary of comments and potential alternatives for decision
- 19 (August 23, 2000, Wednesday) NWPPC staff provides summary of comments and potential alternatives to Fish and Wildlife Committee to consider recommendation (packet)
- 20 (August 29, 2000, Tuesday) Fish and Wildlife Committee considers potential alternatives for recommendation
- 22 (September 13, 2000, Wednesday) NWPPC staff provides Decision Memo with Fish and Wildlife Committee recommendation to Council (packet)
- 23 (September 20, 2000, Wednesday) Council considers approval of Master Plan

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