Proposed Process for U.S. Fish and Wildlife Service

Review of National Fish Hatcheries in the Columbia River Basin

CO-MANAGER REPORT

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Report Summary

In the past 150 years, habitat alterations, hydroelectric development, and consumptive fisheries have impacted the productivity of most salmon and steelhead populations in the Pacific Northwest. To mitigate for those impacts, hatcheries have been used to increase the number of fish available for harvest. However, long-term conservation needs of natural populations and their inherent genetic resources require a reexamination of the role of hatcheries in basin-wide management and conservation strategies.

Over the past five years, a systematic review of state, tribal and federal salmon and steelhead hatchery programs in western Washington has been underway in an attempt to address these harvest and conservation issues. Our internal U.S. Fish and Wildlife Service (Service) *Hatchery Review Working Group* (HRWG) was created to provide recommendations for developing a counterpart process for Service owned and operated hatchery programs in the Columbia River Basin. Our principal task was to propose a process for reviewing existing Service programs to meet the current and future fishery and conservation needs of salmonid resources in the Columbia River Basin. We first convened as a group in early January, 2005.

We first adopted the *principles* and *goals* statements from the western Washington review process, with slight modifications. Principles: (1) Every hatchery stock and program must have well-defined goals in terms of desired benefits and purpose; (2) Hatchery programs must be scientifically defensible; (3) Hatchery programs must respond adaptively to new information. Goals: (1) Establish the scientific foundations for National Fish Hatcheries and cooperative programs; (2) Conserve genetic resources for salmonid species; (3) Assist with the recovery of naturally spawning populations; (4) Provide for sustainable fisheries; (5) Conduct scientific research; (6) Improve quality and cost effectiveness of hatchery programs.

We believe the hatchery review process in western Washington provides both a solid template and operational tools (e.g. software spreadsheets, population dynamic models) for reviewing Service hatcheries in the Columbia River Basin. We also believe that much of the background information necessary for reviewing Service hatcheries in the Columbia River Basin has already been compiled in *Hatchery and Genetic Management Plans* (HGMPs), *Comprehensive Hatchery Management Plans* (CHMPs), and the *Artificial Propagation Review and Evaluation* (APRE) database developed by the Northwest Planning and Conservation Council (NWPCC).

We propose that this review process be conducted in coordination with fisheries co-managers in the Columbia River Basin and with ongoing management processes including the US vs OR proceeding, the protection and mitigation activities of the Northwest Power Planning and Conservation Council (NPCC), and the ESA processes of NOAA Fisheries. We believe this proposed review process will better prepare and position our hatchery programs for integration into NPCC subbasin and regional strategies and the salmon recovery plans under preparation by NOAA Fisheries.

Our specific recommendations represent two tiers of priorities.

First tier recommendations

1. We recommend the Assistant Regional Director for Fisheries appoint a *Hatchery Review Team* (HRT) consisting of a minimum seven members.

2. We recommend that individuals with the following expertises and experiences be included on the HRT: (1) production hatchery manager with extensive culture experience, perhaps a former Service hatchery manager who is now retired; (2) at least one, perhaps two Service hatchery evaluation fishery biologists; (3) geneticist; (4) fish health biologist; (5) physiologist; (6) salmon ecologist; (7) Portland Regional Office (RO) policy person with fisheries management and hatchery experience.

3. We further recommend that the HRT review of Service hatcheries in the Columbia River Basin be conducted primarily as a Service process utilizing Service expertise and resources, with involvement and opportunity for participation by co-managers.

4. The Hatchery Evaluation Team (HET) for each hatchery will need to be an integral component of the review process with primary responsibility for collecting and collating all relevant data and information for the HRT (e.g., in the form of a *briefing book*). Initial co-manager input by the states, tribes, and other federal agencies would occur primarily through their direct participation in meetings between the HRT and the HETs. Stakeholder input could also occur at this time.

5. We recommend that internal review of hatchery programs in the Snake River sub-basin not be restricted to Service-operated facilities but should include all Service-owned hatcheries that are coordinated by the Lower Snake River Compensation Plan (LSRCP) office.

6. Internal reviews of Service hatcheries and programs need to examine short-term and long-term programmatic goals, including future alternative options at each hatchery.[1]

7. Reviews of Service hatcheries will need to examine conservation and harvest needs for salmon and steelhead resources in the Columbia River Basin over the next 10 and 50 years as a foundation for developing a long term, basin-wide, programmatic approach for achieving future management goals and objectives.

8. The HRT reviews will need to examine all operational components of each hatchery facility and each hatchery program.

9. We recommend that the HRT conduct a "pilot review" of one National Fish Hatchery to serve as a template for their subsequent Basin-wide reviews. This pilot review would occur as soon as possible after the HRT is formed and develops an internal schedule. We

[1] The western Washington review process did not specifically address or review programmatic goals of each hatchery. In that review, programmatic goals were established by the state and tribal co-managers with input from federal agencies. The HSRG then reviewed each hatchery program for its scientific consistency to achieve those programmatic goals relative to biological risks. The HSRG did not review or question the co-manager goals themselves.

further recommend that the Warm Springs National Fish Hatchery be used for this pilot review

10. We recommend engaging a professional *facilitator* who could lead the discussions and provide administrative support for the review process. Facilitation was a key element to the success of the western Washington hatchery reform effort.

Second tier recommendations

11. After the "pilot" review of the Warm Springs National Fish Hatchery is completed, we recommend that reviews within the Columbia River Basin be conducted independently in three distinct regions in the following order: (1) Mid-Columbia hatcheries (Leavenworth Complex) funded by the U.S. Bureau of Reclamation; (2) Lower Columbia and Columbia River Gorge hatcheries funded by the Mitchell Act and Army Corps of Engineers; and (3) Snake River hatcheries coordinated by the LSRCP and funded by BPA and the Service. This schedule and phasing of reviews should be further discussed with our cooperators.

12. We propose forming a small Hatchery Oversight Team (HOT) to succeed the HRWG as the primary internal mechanism to oversee the review process, monitor its progress, and transmit communications and reports from the HRT to the Fisheries ARD and project leaders within the Fisheries Program. This team would include, and be coordinated by, the Regional Office Hatchery/Science Team Leader.

13. We suggest the ARD consider convening a "stakeholder's group" for outside evaluation and comment on the HRT's reports and recommendations.

14. Following completion of each regional group of HRT reports, formal coordination and consultation with co-managers and other stakeholders will need to occur prior to final decision-making and implementation of specific program improvements and modifications. The review process needs to incorporate this important step.

15. The final step in the review process would be implementation of approved recommendations that lead to modifications in operating procedures, physical facilities, program objectives, or even new programs. Such adjustments to Service hatchery programs would be documented in Comprehensive Hatchery Management Plans (CHMPs) and in revisions to Section 4(d) Hatchery Genetic Management Plans (HGMPs) for each program, where appropriate.

We estimate that two years will be required to complete the reviews exclusive of the Snake River, requiring approximately 2.5 person-years of time by Service employees.

We recognize that direct input by state and tribal co-managers to the programmatic goals and operations of Service-hatcheries is critically important for developing a basin-wide approach that meets their immediate needs of the co-managers and the long-term needs of salmon and steelhead resources in the Columbia River Basin. Any changes in hatchery operations must be consistent with several legislative and legal constraints including the Mitchell Act, the U.S. vs. Oregon court case, treaty trust responsibilities, the U.S. Endangered Species Act, the U.S.-

Canada Pacific Salmon Treaty, etc. As proposed, state and tribal co-managers of salmon and steelhead resources in the Columbia River Basin will participate in the review process at two points: (1) as participants of the HETs for each hatchery where they can provide direct input to the HRT regarding their needs, interests, and recommendations, and (2) during review and discussions of the HRT's reports and recommendations where the states and tribes can provide their comments and responses. We envision much discussion and feedback from the tribes and states in response to the HRT's reports for each hatchery program.

Finally, we envision strong Service "inreach" and "outreach" components to this proposed review process. The Fisheries ARD will need to provide details of the review process to all Fishery Project Leaders and Program Supervisors. A "white paper" describing the review process will need to be developed for co-managers, stakeholders, and partners, and the general public. We recommend that an internet web site, similar to the one developed by "Long-Live-the-Kings" for the western Washington review process (www.hatcheryreform.org), be developed. All draft HRT reports would be provided to all co-managers and partners, and finalized reports posted on the web site.

I. Introduction and background.

In the past 150 years, habitat alterations, hydroelectric development and consumptive fisheries have impacted the productivity of most salmon and steelhead populations in the Pacific Northwest. Hatcheries have frequently been used as tools to mitigate for reduced abundance of natural fish or to increase numbers of fish available for fisheries. Hatcheries have generally been successful at fulfilling this purpose. However, they have also been identified as one of the possible factors contributing to the decline of wild salmon stocks. Physical and genetic interactions between wild and hatchery fish, blockages of upstream and downstream natural migrations, and adverse impacts on water quality have all been identified as possible adverse effects of hatcheries on natural populations. Hatchery management decisions need to be integrated into basin-wide management and conservation strategies.

Over the past five years, a systematic review of state, tribal and federal salmon and steelhead hatchery programs in Puget Sound and coastal Washington has been underway in an attempt to address these issues (www.hatcheryreform.org). This hatchery reform project has applied accepted scientific principles in a systematic review of state, federal, and tribal hatchery programs in western Washington. This project has successfully applied scientific methods and a cooperative policy framework, involving all fishery co-managers, to this complex challenge. The U.S. Fish and Wildlife Service (Service) was a full participant in all aspects of this review process. While some of the recommendations developed during this review are still undergoing further discussion and possible modifications, the Service developed considerable respect for the value and capabilities of the western Washington approach for meeting the multiple challenges of applying the best available scientific information, integrating hatchery programs into broader management strategies, and effectively addressing most of the scientific criticisms leveled at hatchery programs in the Pacific Northwest.

With the experience gained from the western Washington hatchery review process, our internal Service *Hatchery Review Working Group* (HRWG) was created to develop recommendations for a counterpart process to address similar concerns regarding Service-operated and administered hatchery programs in the Columbia River Basin. Our Group includes several individuals with direct experience in the western Washington hatchery review process, and the Group cumulatively represents dozens of years of experience in the planning, operation, and evaluation of Service hatchery programs. Our principal task was to propose a process for reviewing the Service's existing hatchery programs to meet the current and future fishery and conservation needs of salmonid resources in the Columbia River Basin. We first met as a group on January 6, 2004. This report represents our conclusions and recommendations.

II. Guiding principles and goals of reviews for Service-owned hatcheries.

A. Principles of review process.

The *Hatchery Scientific Review Group* (HSRG) for the Western Washington Hatchery Reform Project identified three overriding, science-based *Principles of Hatchery Reform* to guide their process. We believe these principles are sound and should be adopted for the basis of hatchery reviews in the Columbia River Basin:

1) *Every hatchery stock and program must have well-defined goals in terms of desired benefits and purposes;*
2) *Hatchery programs must be scientifically defensible; and*
3) *Hatchery programs must respond adaptively to new information.*

B. Goals of review process.

The HRWG also adopted the following *goals statement* from a similar goals statement of the western Washington review process.

The goals of hatchery reviews at Service facilities and programs in the Columbia River Basin are to:

1) *establish the scientific foundations for National Fish Hatcheries and cooperative programs,*
2) *conserve genetic resources for salmonid species,*
3) *assist with the recovery of naturally spawning populations,*
4) *provide for sustainable fisheries,*
5) *conduct scientific research, and*
6) *improve quality and cost-effectiveness of hatchery programs.*

III. Recommended review approach.

A. Experience and tools from the western Washington review process.

The HSRG developed a process and several spreadsheet tools for collating information in support of their reviews of hatcheries in western Washington. We believe the Service should adopt a similar process. The general process and available tools developed by the HSRG are described at www.hatcheryreform.org.

B. Recommendations for internal review process of Service operated hatcheries.

We provide the following list of recommendations for reviewing Service-owned hatcheries in the Columbia River Basin. These recommendations are divided into two tiers of priorities. The second tier of recommendations may require some flexibility in their implementation and the roles of co-managers and other stakeholders may need to be modified based on their input and preferences.

First tier recommendations

1. **We recommend the Assistant Regional Director for Fisheries appoint a *Hatchery Review Team* (HRT) consisting of a minimum seven members.** The HRT would take the lead responsibility for conducting the reviews at all Service operated facilities. They would represent a "core group" for the review process.

2. **We recommend that individuals with the following expertises and experiences be included on the HRT:** (1) production hatchery manager with extensive culture experience, perhaps a former Service hatchery manager who is now retired; (2) at least one, perhaps two Service hatchery evaluation fishery biologists; (3) geneticist; (4) fish health biologist; (5) physiologist; (6) salmon ecologist; (7) Portland Regional Office (RO) policy person with fisheries management and hatchery experience. All members of the HRT should have extensive experience with west-coast salmon and steelhead and should include persons both from inside and outside the Columbia River Basin.

3. **We further recommend that the HRT review of Service hatcheries in the Columbia River Basin be conducted primarily as a Service process utilizing Service expertise and resources, with involvement and opportunity for participation by co-managers.** We concluded that this *initial* scientific review of Service facilities should be largely conducted by Service biologists and managers. The needs and interests of the other co-managers would be partially addressed through their participation on the HETs (see recommendation #4 below). The co-managing states and tribes will also be requested to review the reports and recommendations of the HRT before those reports are finalized. We expect significant input from the other co-managers at both of these review stages. This approach will allow the Service to establish a model, or review *template*, that could then be applied to non-Service facilities throughout the Basin after all or a portion of the Service facilities in the Columbia River Basin have been reviewed.

   We anticipate it may not be possible to meet all of the desired expertises for the HRT outlined in recommendation #2 by Service personnel alone. Consequently, we suggest inclusion at least two to three non-Service scientists as official members of the HRT. This should be discussed with co-managers with opportunity for their involvement if they desire.

4. **The Hatchery Evaluation Team (HET) for each hatchery will need to be an integral component of the review process with primary responsibility for collecting and collating all relevant data and information for the HRT (e.g., in the form of a *briefing book*). Initial co-manager input by the states, tribes, and other federal agencies would occur primarily through their direct participation in meetings between the HRT and the HETs. Stakeholder input could also occur at this time.** We anticipate a very close working relationship between the HRT and the HET for each hatchery during the review process. The HET provides a formal

mechanism to receive *non-Service input* from other co-managers because, in many cases, HETs include tribal biologists, state fishery biologists, and NOAA-Fisheries scientists and managers. For the review process proposed here, the co-managers will need to provide direct input to the HRT through their direct participation in meetings between the HRT and the HETs. This may require further formalization of the HETs for each hatchery before the reviews are initiated.

5. **We recommend that internal review of Service hatchery programs in the Snake River sub-basin include all Service-owned hatcheries that are coordinated by the Lower Snake River Compensation Plan (LSRCP) office.** Many Service-owned and funded hatcheries in the Snake River sub-basin are operated by state and tribal cooperators, but are coordinated through the Service's LSRCP office in Boise, Idaho. We concluded that the HRT should review all LSRCP programs in the Snake River sub-basin consistent with the format developed for Service-operated National Fish Hatcheries (NFH). Moreover, LSRCP facilities are programmatically linked among agencies and tribes to a much greater extent than hatcheries elsewhere in the Columbia River Basin. This internal review of Service-owned facilities in the Snake River sub-basin will obviously require significant involvement of the Service's partners to make these reviews a useful product for guiding hatchery programs in the future. The structure of those reviews, including membership on the HRT, will need to be determined at a later date.

6. **Internal reviews of Service hatcheries and programs need to examine short-term and long-term programmatic goals, including future alternative options at each hatchery.**[2] We believe an internal review of Service-operated hatcheries in the Columbia River Basin should examine the short-term and long-term goals of each hatchery program and provide recommended options or alternatives for potential future programmatic changes, as appropriate. The pros and cons of each alternative should be described so that those alternatives can be reviewed and discussed at both a policy level and at an operational, technical level with the other co-managers. The reviews should ask the question: "What is the best use of this Service-operated facility for achieving long-term harvest and conservation goals in the Columbia River Basin?" We believe all options should be open for discussion and debate with a desire to meet the anticipated future needs of the resource for harvest and conservation.

7. **Reviews of Service hatcheries will need to examine conservation and harvest needs for salmon and steelhead resources in the Columbia River Basin over the next 10 and 50 years as a foundation for developing a long term, basin-wide, programmatic approach for achieving future management goals and objectives.** This long-term perspective is similar to the western Washington review process. In

[2] The western Washington review process did not specifically address or review programmatic goals of each hatchery. In that review, programmatic goals were established by the state and tribal co-managers with input from federal agencies. The HSRG then reviewed each hatchery program for its scientific consistency to achieve those programmatic goals relative to biological risks. The HSRG did not review or question the co-manager goals themselves.

the past, hatchery programs have largely been managed with the short-term goal of simply maximizing adult returns 2-3 years into the future. This short-sighted perspective overlooks the need to integrate conservation, harvest, and habitat needs for salmon and steelhead resources into a long-term strategy to conserve those resources for future generations of stakeholders and residents of the Pacific Northwest. A long-term strategy is particularly needed in the Columbia River Basin where the existing hatchery system is largely a "life support system" to maintain salmonid and steelhead resources at substantially higher levels of abundance than could occur otherwise in the presence of the existing hydropower system. This long-term perspective also recognizes the need to maintain natural spawning habitats as integral components of the entire ecosystem on which those salmonid resources depend. This latter need is essential for maximizing overall productivity and viability of salmonid resources in the long-term.

8. **The HRT reviews will need to examine all operational components of each hatchery facility and each hatchery program.** The details of these reviews can be modeled after the recently completed reviews in western Washington. Those reviews examined habitat conditions in the watersheds in which each hatchery is located, including assessments of the predicted habitat conditions 50 years into the future. Those reviews also included assessments of the biological significance and viability of natural populations of each salmonid species in each of the watersheds so that the biological risks and potential benefits of hatchery-origin fish on naturally spawning populations could be assessed. Consistent with the hatchery reviews in western Washington, the reviews in the Columbia River basin will also need to examine the condition of physical facilities, the quality and quantity of available water sources, broodstock sources and selection of adults, spawning protocols, feeding protocols, rearing and release protocols, pathogen monitoring and disease control, nutritional and physiological requirements, genetic monitoring needs, and any other operational or monitoring components of each hatchery program. Those reviews should also examine current fish protection devices such as water intake screens and fish passage facilities. These reviews should clearly identify, or quantify where possible, the current harvest, conservation, research, educational, and cultural benefits conferred by each program. They should also examine the potential risks posed by each program to other stocks and species in the Columbia River Basin, including assessments of the environmental risks (e.g. effluent and pollution abatement) posed by each hatchery on the local watershed. The review team should then assess the relative benefits and risks posed by each program and provide recommendations that increase or maximize potential benefits while reducing risks. A suggested template for a program report is presented in subsection "D" below.

9. **We recommend that the HRT conduct a "pilot review" of one National Fish Hatchery to serve as a template for their subsequent Basin-wide reviews. This pilot review would occur as soon as possible after the HRT is formed and develops an internal schedule. We further recommend that the Warm Springs National Fish Hatchery be used for this pilot review.** The existing spring chinook salmon program at the Warm Springs National Fish Hatchery (WSNFH) was initiated

in the late 1970's with long-term conservation and harvest goals as integral components of the program. As a consequence, this program has already undergone more detailed, long-term planning and strategizing to achieve short-term and long-term goals than any other Service-operated program in the Columbia River Basin. Indeed, the spring chinook program at the WSNFH has been highlighted by the HSRG in western Washington as a "prototype" program for hatchery reform. We therefore recommend that the HRT initiate its reviews by first reviewing the WSNFH.

10. **We recommend that the Assistant Regional Director for Fisheries engage a professional *facilitator* to lead discussions and provide administrative support for the review process.** A professional facilitator would allow each of the HRT members to focus their energies and expertise on the analyses and evaluations of each hatchery program without being distracted by organizational and bookkeeping tasks of recording minutes and other administrative duties of the review process. The facilitator should be someone with similar facilitation experience, well acquainted with salmon and steelhead management issues in the Pacific Northwest.

Second tier recommendations

11. **After the "pilot" review of the Warm Springs National Fish Hatchery is completed, we recommend that reviews within the Columbia River Basin be conducted independently in three distinct regions in the following order: (1) Mid-Columbia hatcheries (Leavenworth Complex) funded by the U.S. Bureau of Reclamation; (2) Lower Columbia and Columbia River Gorge hatcheries funded by the Mitchell Act and Army Corps of Engineers; and (3) Snake River hatcheries coordinated by the LSRCP and funded by BPA and the Service.** Each of the three regions represents three distinct ecosystems. They also represent a contrasting set of operational constraints and funding sources. Therefore, we recommend that the HRT conduct three independent sets of reviews, one for each of the three regions. This recommendation is similar to the conclusions of the HSRG in western Washington where reviews were conducted independently in 10 regions. We further recommend that the Leavenworth Complex be reviewed first, and Snake River hatcheries reviewed last. Several recent conflicts related to broodstock choice, fish passage, water rights, and other ESA issues at the Leavenworth, Entiat, and Winthrop National Fish Hatcheries motivate this complex to a high priority for internal review. Hatchery reviews in the Snake River sub-basin will be more complex than elsewhere and should be initiated after reviews in the other two regions are complete.

12. **We propose forming a small Hatchery Oversight Team (HOT) to succeed the present work group as the primary internal mechanism to oversee the review process, monitor its progress, and transmit communications and reports from the HRT to the Fisheries ARD and project leaders within the Fisheries Program.** The HOT would be formed by the ARD, coordinated by the Regional Office Hatchery/Science Team Leader, and would include participation by line supervisors within the Fisheries Program. Responsibilities of the HOT will require a broad perspective on the progress and success of the hatchery review process in meeting

Service and program needs. The HOT would serve as the principal internal mechanism to oversee the HRT's review process and transmit communications, reports, and recommendations to the ARD. The HOT, along with the ARD, would also be the primary contact group between the Service and the Service's partners to develop policies for implementing or modifying the recommendations from the HRT's reviews. The HOT's most important task – in the long run - would be to work with the ARD and our partners to identify the appropriate mechanisms for implementing recommendations identified by the HRT within the authorizations, legal mandates, trust responsibilities, and other issues important to the co-managers and stakeholders.

13. **We suggest the ARD consider convening a "stakeholder's group" for outside evaluation and comment of the HRT's reports and recommendations.** We recommend that the HRT's reports, which would include comments and recommendations from the co-managers (see section D below on *proposed review template*), be shared with a *stakeholders group* for outside examination and comment by individual participants. This group would consist of representatives of non-government organizations (NGOs) and other stakeholder entities who would individually provide external evaluation and comment on the Services' proposed recommendations and the co-manager responses. The resulting stakeholders' assessments of the HRT's reports would be available to the greater fisheries community and the general public. Their assessments would also be considered in revisions of the HRT's reports prior to implementation of specific recommendations (see recommendation #14 below). We expect that the HRT's reports would be shared with the stakeholders group at the same time those reports are released for public review.

14. **Following completion of each regional group of HRT reports, formal coordination and consultation with co-managers and other stakeholders will need to occur prior to final decision-making and implementation of specific program improvements and modifications. The review process needs to incorporate this important step.** The mechanisms for these discussions and the decision-making process will vary depending on the nature and implications of the specific recommendation. As noted in recommendation #12, the proposed HOT would oversee and manage this process of coordination and consultation following finalization of the HRT reports. As previously noted, this may involve specific interagency, public, and legal processes mandated by the proposed action. In all cases, our intent would be to closely involve resource co-managers in the review, decision, and implementation processes.

15. **The final step in the review process would be implementation of approved recommendations that lead to modifications in operating procedures, physical facilities, program objectives, or even new programs. Such adjustments to Service hatchery programs would be documented in Comprehensive Hatchery Management Plans (CHMPs) and in revisions to Section 4(d) Hatchery Genetic Management Plans (HGMPs) for each program, where appropriate.** Decisions

to implement hatchery program modifications will need to be clearly documented for accountability. Such information will also need to be readily available to our partners and other interested parties.

C. Information needed for review process.

We believe most of the information necessary for conducting reviews of Service hatcheries in the Columbia River Basin has already been compiled in the Artificial Production Review and Evaluation (APRE) database, Hatchery and Genetic Management Plans (HGMPs), Comprehensive Hatchery Management Plans (CHMPs), and other review and planning documents associated with salmon and steelhead resources in the Columbia River Basin (e.g., sub-basin planning documents, NOAA-Fisheries' Lower Columbia River Technical Recovery Team (TRT) report, etc.). We believe the to-be-formed HRT, responsible for conducting reviews of Service hatcheries, should also be responsible for establishing a standardized format for collating, storing, retrieving the information used as a foundation for their reviews and recommendations.

D. Proposed review template.

Appendix 2 provides an example of a program-specific report from the HSRG as part of the western Washington hatchery review process. A similar format could be used or developed by the HRT for reporting their conclusions and recommendations for Service-owned hatcheries in the Columbia River Basin. We suggest the following template, adopted from the HSRG format, as a basis for the HRT's reports.

1. **Name and location of hatchery.** (e.g. Leavenworth National Fish Hatchery, Leavenworth, Washington)

2. **Existing name of program and stock at hatchery.** (e.g., Spring Chinook Program).

3. **Goals of current program.** This would be a general summary statement regarding the current goals of the program. It would describe the purpose of the program (e.g. harvest, conservation, etc.) and the current management strategy for maintaining the broodstock (integrated or segregated) relative to naturally spawning populations. This section could also include a general summary of the federal authorizations that fund the program (e.g. Mitchell Act). The HRT could develop a table similar to one below, as used by the HSRG in western Washington, to summarize the current or future status (or goal) of each salmonid stock in a region and watershed:

Stock Goals:	Current	Short-Term	Long-Term
Biological Significance	Low	Low	Low
Population Viability[20]	High	High	High
Habitat	Limiting	Limiting	Limiting
Harvest Opportunity	Each Year	Each Year	Each Year
Hatchery Program:			
Purpose	Harvest		
Type	Segregated		

4. **Description of the current program.** This would describe, in general terms, (a) the history of the broodstock and program, (b) the target number of adult males and females that are spawned each year to meet programmatic goals, and (c) the target number of fish, their life history stage (e.g. smolt), and (c) size range (length and weight) at the time of release.

5. **Operational constraints and considerations of current program and hatchery.** Specific details of each hatchery and programmatic constraints could be described here. For example, any agreements with tribes or other co-manager obligations would be described, including the Columbia River Fishery Management Plan (CRFMP), the U.S-Canada treaty, etc. In addition, facility constraints or specific protocols of the program necessary for understanding the capabilities and limitations of the program, and hatchery, could be listed or described.

6. **Evaluation of the harvest, conservation, or other benefits provided by the current program.** This section should summarize the estimated number of hatchery-origin fish produced by this program that are harvested annually by U.S. commercial, tribal, and recreational fishers, including contributions to commercial fisheries in Alaska and Canada. This section should also describe any conservation benefits, potential or realized, afforded by the current program towards maintaining the genetic resources of native populations of salmon and steelhead in the Columbia River Basin. Research, educational, cultural (e.g. Tribal), and outreach benefits associated with the program should also be described.

7. **Evaluation of the risks posed by the current program to other stocks, hatchery or wild, of the same species or other species.** This evaluation would summarize the known and likely biological risks of the existing program to other stocks in the Columbia River Basin. These risks would include, but would not necessarily be limited to, genetic risks, predation risks, competition risks, disease risks, etc. This section would summarize any information on residualization of hatchery-released fish. This section would also summarize known levels of escapement, documented levels of straying of returning adults to non-target watersheds, the number of "surplus" adults returning to the facility or watershed in excess of broodstock needs or natural spawning goals, etc. This section would also examine fish passage issues including barriers and weirs that may inhibit passage of fish and impact natural populations. Much of these data may already be described in existing HGMPs.

8. **An overall evaluation of the relative benefits and risks posed by the existing program.** This overall evaluation and summary would provide the foundation for any recommendations of the HRT related to changes in the existing program, including changes in programmatic goals or potential termination or replacement of the existing program. The HRT will have to carefully weigh the overall benefits conferred by the current program relative to the risks and potential biological costs imposed by the program.

9. **Recommendations for existing facilities and programs.** These recommendations would be in direct response to the evaluations and conclusions developed under item #8 above and would explicitly address our recommendation #8 on page 12 of this report. These recommendations would fall into two categories: those addressing the physical facilities of the station and those addressing operations and protocols of the existing program. These recommendations would also address the adequacy and efficiency of each facility that might inhibit programmatic opportunities. This section could be quite detailed or very general, comparable to the corresponding "recommendations" section of the HSRG reports (Appendix 2).

10. **Alternatives to existing program.** The HRT should consider, and describe where appropriate, possible alternatives to the existing program for maximizing benefits and reducing risks. In all cases, Alternative 1 would be "little or no change to the existing program other than the specific recommendations outlined in item #8 above. Operational details for each of the identified alternatives would not be presented here; only a summary of the programmatic alternatives and their perceived benefits and risks would be described. These alternatives may represent significant adjustments to the existing program, or they may represent complete replacement of the existing program with a new program for the same or different species. The HRT, in collaboration with the HETs and the Service's co-managing partners, and with potential input from a "stakeholders committee" (recommendation #15, page 15), will have considerable latitude to propose alternatives to existing programs at Service-owned hatcheries. Although an unlimited number of alternatives are possible, the HRT will need to consider their proposed alternatives in the context of long-term goals, federal authorizations, and legal constraints in the Columbia River Basin (e.g., ESA, U.S. vs. Oregon, etc.).

11. **Recommended alternatives.** This section will evaluate the pros and cons of each alternative, as summarized in the preceding section, and recommend – in collaboration with the HET and direct input from the co-managing states and tribes - a recommended alternative for the HOT and ARD to consider. This recommendation would be *pre-decisional,* but it would represent the alternative that the HRT believes would best satisfy the principles and goals of "hatchery reform" in the Columbia River Basin (page 8). Operational details of the recommended alternative would not be presented here but would need to be developed by the HET as part of a new or revised Comprehensive Hatchery Management Plan (recommendation #16, page 16).

12. **Co-manager comments and response.** We recommend that the conclusions and draft recommendations of the HRT be presented to the co-managing states and tribes both verbally and in writing with a predetermined "turn-around" time (e.g. 30-60 days) for comments and recommendations. This will allow modifications to the draft reports before they are finalized and distributed for public comment. The finalized comments and response of the co-managers would be included in the written reports (see Appendix 2).

13. **Stakeholder comments and response.** The participants in the *Stakeholders Group* would have an opportunity to provide written comments and responses to the HRT's recommendations and the co-managers' written responses. We anticipate that the HRT's reports would be shared with the stakeholders group at the same time they are released for public comment. The stakeholders' comments could then be added to the finalized version of the HRT's report.

E. Need for co-manager input and review.

We recognize that direct input by state and tribal co-managers to the programmatic goals and operations of Service-hatcheries is critically important for developing a basin-wide approach that meets their immediate needs of the co-managers and the long-term needs of salmon and steelhead resources in the Columbia River Basin. We anticipate that the co-managing agencies and tribes will have two significant opportunities to provide direct input into the Service's internal review of its hatcheries in the Columbia River Basin: (1) during the information gathering phase via their participation on the respective HETs, which are intended to work closely with the HRT during the review process; and (2) during co-manager review of the HRT's draft reports and recommendations. The co-managers will have an opportunity to collectively discuss those draft recommendations and provide feedback prior to finalization of those HRT reports. We believe this proactive-reactive approach will achieve rapid progress towards achieving the principals and goals of hatchery reform in the Columbia River Basin (Section II of this report).

Co-managers would also be directly involved in coordination and consultation associated with Service decision-making and implementation of program modifications following completion of HRT reports and during development of new or revised Comprehensive Hatchery Management Plans for each facility and program.

F. Need for Service outreach.

We believe the Service will need to develop a significant outreach effort to the co-managers, stakeholders, and the general public regarding the desirability of the hatchery reviews proposed here. The Service's partners and the general public need to be convinced that the Service is undertaking these reviews in good faith with the goal of maximizing the long-term future viability of salmonid resources in the Columbia River basin. The success of this review effort may depend largely on the success of the Service's outreach effort to gain co-manager and public support. Consequently, we

propose, in Section VI below, several key outreach efforts that the Service should consider as part of this review process.

IV. Schedule options.

A. Pilot review: **Warm Springs National Fish Hatchery**.

The first step in the Service's review process is to conduct a pilot review to determine the strengths and weaknesses of the proposed review process, determine the work load necessary for conducting the reviews, and help modify the review process before reviewing other National Fish Hatcheries in the Columbia River basin. As noted previously, we recommend that the HRT conduct their "pilot" review at the Warm Springs National Fish Hatchery in the Deschutes River subbasin of central Oregon.

B. Regional Reviews.

Once the review of Warm Springs National Fish Hatchery is completed, reviews could commence at the Leavenworth complex of hatcheries in the mid-Columbia River followed by the Mitchell Act hatcheries in the lower Columbia River. We anticipate that those three sets of reviews will require approximately two years to complete. We anticipate that reviews of federally-owned hatcheries in the Snake River basin will require one full year to complete.

C. Timeline.

A proposed timeline for completing the reviews is presented below.

- June-August 2005: Formation of HRT, committees, contracts, etc.
- September-December 2005: Warm Springs NFH
- January-September 2006: Leavenworth NFH Complex (Mid-Columbia River)
- October 2006 – September 2007: Eagle Creek, Spring Creek, Little White Salmon, and Carson NFHs (Lower Columbia River)
- October 2007 – September 2008: Lower Snake River Compensation Plan hatcheries.

V. Legal framework and constraints (see Appendix 3 for more details).

A. Background.

All Service hatchery production in the Columbia River Basin is guided by a legal framework that in many cases defines production goals and even operational parameters such as appropriate broodstocks, release sites, marking protocols, etc. This legal framework includes the *U.S. v. Oregon* court case, court ordered management agreements, Endangered Species Act compliance, treaty trust responsibilities, mass marking legislation, and mitigation responsibilities from authorizing legislation. It

should *not* be interpreted that changes can not be made to current production programs because of the current legal framework. (NOAA Fisheries and the Service are investigating hatchery reform to address ESA compliance and stock recovery issues in specific instances.) Rather, proposed changes to production programs must be scientifically based and must be coordinated through the *U.S. v. Oregon* co-manager review process within the legal context.

B. Hatchery reform efforts in the Columbia River Basin since 1990.

Since 1990, a number of hatchery reviews have taken place in the Columbia River Basin, including reports from the U.S. Fish and Wildlife Service, National Marine Fisheries Service, the Integrated Hatchery Operations Team, and Northwest Power Planning Council (Appendix 1). Along with these reviews, a number of guidelines and recommendations for hatchery management and operations have been developed. While progress has been made in hatchery management planning i.e. the development of Hatchery and Genetic Management Plans, implementing recommendations from the reviews has not been fully successful, e.g., evaluating the purpose for hatchery programs. In addition, the failure to fully implement management actions in *U.S. v Oregon*, the Pacific Salmon Treaty, and especially the Northwest Power Act has become evident as multiple salmon and steelhead populations in the Columbia River continue to be listed under the Endangered Species Act (ESA), starting in 1991 with Snake River sockeye salmon. As of 2005, twelve salmon and steelhead populations identified as Evolutionary Significant Units (ESUs) are listed under the ESA in the Columbia River Basin. Fisheries management has changed as a result of ESA listings in the Columbia River and more is needed, including implementation of hatchery reform.

VI. Outreach.

This proposed scientific hatchery review process would be similar to the Western Washington Hatchery Reform Project. We recognize that for this process to be successful and credible, it is essential that co-managers, partners, stakeholders, and the general public are kept informed and are provided an opportunity to provide input into the review process.

We propose that a web site, similar to the one established by *Long Live the Kings* for the Western Washington Hatchery Reviews (www.hatcheryreform.org), would be developed to keep co-managers, partners, Service employees and the public informed of the review process.

The importance of input by state and tribal co-managers during the information gathering phase was identified in section III, subsection E. The logical process would be to work through the HETs to facilitate that input. A formal request to participate in the information gathering phase should be provided to the co-managers by the ARD. A Service member of the HET would coordinate that information collection process.

APPENDIX 1.

An Annotated Bibliography of Hatchery Reviews in the Columbia River Basin, 1990 to 2005

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1. *Review of the History, Development, and Management of Anadromous Fish Production Facilities in the Columbia River Basin*. 1990. Columbia Basin Fish and Wildlife Authority as compiled by the U.S. Fish and Wildlife Service (USFWS), Office of the Columbia River Coordinator.

> This report was prepared for the Northwest Power Planning Council to provide a historical perspective on the development and management of Columbia River fish hatcheries. This report concluded, largely from an optimistic viewpoint, that implementing the *U.S. v Oregon* Columbia River Fish Management Plan, the Pacific Salmon Treaty, and the Northwest Power Act would all result in "gravel-to-gravel" management, integrating natural and artificial production into a comprehensive fish production program. The report outlined 10 needs for hatcheries that are largely still valid today. For example, Need #7 *"Hatcheries represent a significant repository of genetic diversity that must be maintained through improved management. Practices within the hatchery environment that result in the selection of undesirable traits, or the loss of desirable traits, should be eliminated to reduce genetic risk."*

2. *Assessment of Present Anadromous Fish Production Facilities in the Columbia River Basin. Volume 1: USFWS Hatcheries*. 1990. Bonneville Power Administration report by National Marine Fisheries Service.

> "The goal of this report is to document current production practices for hatcheries which rear anadromous fish in the Columbia River Basin and to identify those facilities where production can be increased."

3. Reports by the *Integrated Hatchery Operations Team* (IHOT): IHOT was a multi-agency group called for by the Northwest Power Planning Council (NPPC) in the early 1990's. This team produced a number of reviews and reports and was the group asked to develop new basin-wide policies for managing and operating existing and future anadromous fish hatcheries in the Columbia River Basin. IHOT dissolved in 1998 when the Bonneville Power Administration stopped providing funding.

- *Existing Policy Affecting Hatcheries in the Columbia River Basin*. 1992 IHOT Annual Report to Bonneville Power Administration.

  Combined reports from the USFWS and states of Washington, Oregon, and Idaho describing existing policies and laws guiding hatchery operations in the Columbia River Basin.

- *Operation Plans for Anadromous Fish Production Facilities in the Columbia River Basin.* 1992 and 1995 IHOT Annual Reports to Bonneville Power Administration.

  Annual reports were developed in 1992 and 1995 for all hatcheries in the Columbia River Basin, including USFWS hatcheries. Reports described current practices and performance measures on how each hatchery met the following objectives: (1) Hatchery Production (juveniles),(2) Minimize interactions with other fish populations through proper rearing and release strategies, (3) Maintain stock integrity and genetic diversity of each unique stock through proper management of genetic resources, (4) Maximize survival at all life stages using disease control and disease prevention techniques. Prevent introduction, spread or amplification of fish pathogens, (5) Conduct environmental monitoring to ensure that hatchery operations comply with water quality standards and to assist in managing fish health, and (6) Communicate effectively with other salmon producers and managers in the Columbia River Basin.

- *Policies and Procedures from Columbia Basin Anadromous Salmonid Hatcheries*. 1994 IHOT Annual Report to Bonneville Power Administration.

  "This document outlines regional policies and procedures for hatchery operations in the Columbia River Basin… Hatchery operations discussed in this report include broodstock collection, spawning, incubation of eggs, fish rearing and feeding, fish release, equipment maintenance and operations, and personnel training… The parties pledge to confer with each other and to use their authorities and resources to accomplish these mutually acceptable hatchery practices."

- *Independent Audits of Columbia River Hatcheries based on IHOT Performance Measures*. 1996 and 1997 reports to Bonneville Power Administration.

  The independent audits were performed by Montgomery Watson (contractor) and were conducted in 1996-1997 as part of a 2-year effort that included 67 hatcheries and satellite facilities in the Columbia River Basin, operated by the USFWS and states of Oregon, Washington, and Idaho. The hatcheries were evaluated against policies and related performance measures developed by IHOT based on a 109-page questionnaire developed by the contractor. A compliance report was developed after collecting information from the regional offices, hatchery manager, and site visits. The compliance report documented compliance with each performance measure and was shared with the hatchery manager and IHOT representative. Cost estimates were developed for remedial actions when needed.

4. *Northwest Power Planning Council and the Independent Scientific Advisory Board*: "In July 1997, the U.S. Senate directed the Council, with the assistance of the Independent Scientific Advisory Board (a panel of 11 scientists who advise both the Council and the National Marine Fisheries Service), to "conduct a thorough review of all federally funded hatchery programs operating in the Columbia River Basin…" The Council is to assess the "operation, goals and

principles of state, tribal and federal hatcheries…" The Council is to recommend to Congress a set of policies that would guide the use of Columbia River hatcheries." The following was the Council's report:

- *Artificial Production Review: Report and recommendations of the Northwest Power Planning Council*. October 1999.

  Chapters of this report identified the scientific principles for policy changes, management principles, legal mandates, the five purposes of artificial production, policies to guide artificial production, performance standards and indicators, and six implementation recommendations. The bulk of the report included 5 appendices on:

  - Appendix 1: Review of Artificial Production of Anadromous and Resident Fish in the Columbia River Basin. Part I: A scientific basis for Columbia River production programs. April 1999.

    "The report includes an historical overview of artificial production within the basin, a review of the state of the science with respect to effectiveness of artificial production as a means to augment harvest, a review of the state of the science with respect to ecological and genetic effects of artificial production on wild spawning populations, and a set of recommendations in the form of guidelines (20) that might guide policy on artificial production so as to be consistent with sound scientific foundation."

  - Appendix 2: Artificial Production Programs and Policy Developments in the Columbia River Basin.

  - Appendix 3: Interim Standards for the Use of Captive Propagation.

  - Appendix 4: Hatchery and Genetic Management Plan (HGMP) Template

  - Appendix 5: Bibliography

- *Artificial Production Review and Evaluation*: Database driven report in conjunction with development of HGMPs and Subbasin Plans. 2004-2005. From www.nwcouncil.org:

  "The next phase of the review is the Artificial Production Review and Evaluation or APRE. It is intended that the APRE will include a review of all artificial production facilities and programs in the Columbia River Basin — more than 300 programs of anadromous and resident fish programs involving about 130 facilities."

  "The primary objectives of the APRE are:

  1. determine whether or not a program meets its stated purpose;
  2. evaluate whether a program is consistent with legal, policy and scientific criteria; examine the operational costs;
  3. outline the benefits and risks of the program; and

4. gather and distribute hatchery data and information to regional subbasin planning processes."

"The APRE is being completed in cooperation with NOAA Fisheries and the U.S. Fish and Wildlife Service. Data and information collected from the review will meet both the Council's goals, as well as aid in the completion of NOAA Fisheries Hatchery and Genetic Management Plans (HGMPs). The HGMP's will be used by the fisheries service and the U.S. Fish and Wildlife Service to assess the affects of artificial production programs on listed anadromous species."

"Information will be collected through an electronic questionnaire designed to capture the data necessary for the Council's review and to complete HGMP's. This information and data will then be the common source for both the APRE and HGMP processes. See chart of the APRE/HGMP relationship (10k PDF). Fish and wildlife managers in each Columbia Basin province will be involved in the review process through a series of workshops. Programs will be reviewed in relation to goals and objectives for a specific area. The results of the analysis will be assembled in a draft report for each province."

"A final set of documents with the conclusions and recommendations for all hatchery programs will incorporate comments from regional managers and hatchery operators for each province."

"The goal of the final report is to provide accurate and complete information on artificial production programs by province and subbasin for subbasin planning groups. With this information, subbasin planners will be able to identify and prioritize needed changes in artificial production programs, and include them in their subbasin plans."

"Hatcheries, operating under new scientific methods and goals, can play a crucial role in preserving and restoring salmon in the basin. Through the APRE, we hope to better define their role so their activities make sense scientifically, and they can meet their goals without harming natural populations of fish."

"APRE and subbasin planning"

"Hatchery program information and final recommendations from the APRE process will be made available to subbasin planners. APRE provincial evaluations and workshops have been scheduled to coordinate with subbasin planning to the greatest extent possible. Subbasin planners will be provided a wide variety of hatchery information including operational information, adult return and harvest data, potential hatchery/natural stock interactions as well as current program goals and objectives. See Subbasin Planning."

Current Status: The APRE database and workshops have been completed and a draft report produced. The database and APRE reports were helpful in pointing out potential benefits/risks and information gaps for individual hatchery facilities but the HGMPs produced as a direct result of creating the database was deemed inadequate by the fisheries management agencies. The USFWS as well as other agencies produced separate HGMPs

apart from the APRE process (see HGMP section below). How APRE will be incorporated into subbasin planning or how hatchery operations and funding will be affected is still unclear at this time. The subbasin plans are undergoing revision in some cases, with the next phase of planning to include integrating hatchery programs into subbasin plans for at least five subbasins. An "All-H-Analyzer" (AHA) model which was developed in Puget Sound by the Hatchery Science Review Group is also being evaluated for use in Columbia River subbasin planning.

5. *Hatchery and Genetic Management Plans*, 1999, 2002 and 2004.

Largely as a result of the Artificial Production Review (1999), the 2000 Biological Opinion on the Federal Columbia River Power System and on-going ESA compliance for listed salmon and steelhead in the Pacific Northwest, NOAA Fisheries has adopted the Hatchery and Genetic Management Plan (HGMP) as the ESA consultation mechanism (replacing Biological Assessments) which agencies must operate under, including the USFWS. In July 2003, NOAA Fisheries provided an overview of a process to further develop Hatchery and Genetic Management Plans (HGMP) for artificial production programs in the Columbia River Basin. This process was referred to as HGMP Phase II and III. This HGMP process was designed to provide a direct linkage between development of HGMP's and a number of other concurrent and interrelated NOAA Fisheries (ESA and Recovery Planning), Northwest Power and Conservation Council (Subbasin Planning and Artificial Production Review and Evaluation), and *US v Oregon* processes underway in the Basin. The process was designed to collaboratively develop HGMP's for artificial propagation programs that meet the requirements of NOAA Fisheries' FCRPS and Artificial Propagation Biological Opinions and Recovery Planning, Northwest Power and Conservation Councils' Artificial Production Review and Evaluation and Subbasin Planning efforts, negotiated agreements in *US v Oregon*, and Federal mitigation and tribal trust responsibilities.

The USFWS in the Columbia River Basin has completed three rounds of HGMPs for NOAA Fisheries, in 1999 shortly after the first Biological Opinion was produced, in 2002 (no action from NOAA Fisheries resulted from the 1999 and 2002 plans), and again in 2004 as part of the HGMP Phase II/III process. The USFWS is currently in Section 7 consultation with NOAA Fisheries on our lower Columbia River facilities, awaiting a Biological Opinion (the last Biological Opinion on hatcheries in the Columbia River Basin was issued by NOAA Fisheries in 1999). Our 2004 version of the HGMP included Section 1.16 – Potential Alternatives to the Current Program and Potential Costs for Reforms and Investments. NOAA Fisheries, the Northwest Power and Conservation Council, and the fisheries management agencies are still sorting out how hatchery actions will fit into FCRPS and Artificial Propagation Biological Opinions and Recovery Planning, Northwest Power and Conservation Councils' Artificial Production Review and Evaluation and Subbasin Planning efforts, negotiated agreements in *US v Oregon*, and Federal mitigation and tribal trust responsibilities.

6. Internal USFWS Planning:

- Hatchery Evaluation Vision Action Plan. 1993.

  As a result of the Hatchery Evaluation Vision Action Planning process, Hatchery Evaluation Teams (HETs) were formed for each National Fish Hatchery in the Pacific Region, including the Columbia River Basin. The teams involved USFWS staff from the respective hatchery, fish health, and fisheries management staff. As identified in the Roles and Responsibilities section of the plan, the first responsibility of the hatchery evaluation team was to define the objectives of the hatchery and to develop biologically sound long range goals for each stock raised at the hatchery. These defined goals were to be written into a 5 year operation plan. Each HET was to determine stock goals, not forgetting our legal mandates. Goals were to include production, stock integrity and genetic diversity, interactions with wild stocks, smolt survival, adult contribution, release strategies, defining stock quality standards, stocks and environmental concerns, hatchery methods and operations, significance of disease, and escapement. In addition to the 5 year operations plan, four reports were recommended: Annual Report, Brood Year Report, Monitoring and Analysis Report, and Special Studies. Details of each report were discussed as well as suggested steps in developing a study proposal. The bulk of the 5 year hatchery operations plan work was accomplished by IHOT. The latest operations plan developed by IHOT was in 1996. In 1998, IHOT was dissolved. Individual hatcheries (like Spring Creek and Warm Springs) still have a current operations plan in-place. Hatchery and Genetic Management Plans and the development of Comprehensive Hatchery Management Plans have replaced the 5 year operations plan in most cases. Currently, each hatchery operates an informal HET structure, depending on hatchery, personnel, and funding for Monitoring & Evaluation. Regardless of the level of activity of the HET, much coordination has and continues to occur between the hatchery, fish health, and fisheries management. The annual USFWS Hatchery Management Workshop hosted by Abernathy FTC and Leavenworth NFH Complex could be considered an unplanned but progressive outcome of the Hatchery Evaluation Vision Action Plan.

- Comprehensive Hatchery Management Plans 2002 - 2005

  In 2002, the first Comprehensive Hatchery Management Plan (CHMP) was completed by the USFWS: Carson NFH, October 2002. From that prototype, other hatcheries in the Pacific Region have developed draft plans. As stated in the explanation of purpose, the CHMP is an operational management plan which outlines policy, legal mandates, goals and objectives relevant to the overall management of the station. This document is a planning and reference tool and is not a decision-making or policy-making document. By the end of 2005, all National Fish Hatcheries in the Pacific Region are to have drafts completed for review and signature by the Regional Director. Although significant progress has been made at the field office level, it is doubtful that all USFWS hatcheries in the Pacific Region will have a final draft completed by the end of 2005 (largely because of other Regional priorities).

APPENDIX 2. Example of an HSRG report for a specific hatchery program.

HATCHERY SCIENTIFIC REVIEW GROUP
Puget Sound and Coastal Washington Hatchery Reform Project

Purdy Creek (George Adams) Hatchery Fall Chum

Washington Department of Fish and Wildlife

Stock Goals:	Current	Short-Term	Long-Term
Biological Significance	Low	Low	Low
Population Viability[20]	High	High	High
Habitat	Limiting	Limiting	Limiting
Harvest Opportunity	Each Year	Each Year	Each Year
Hatchery Program:			
Purpose	Harvest		
Type	Segregated		

PROGRAM DESCRIPTION

The George Adams Hatchery fall chum stock originated from a 1976 release of 4.7 million fingerlings obtained from Hoodsport Hatchery (Finch Creek) broodstock. This stock is one of six stocks within the Hood Canal fall chum GDU. The current program began in 1986. Five million fry at 550 fish per pound are released on-station into Purdy Creek. Adult collection and egg-take occur at George Adams. Most of the egg-take is eyed, hatched and reared on-station. However, some eggs are routinely eyed at McKernan Hatchery and then transferred back to George Adams for hatching and rearing. The egg-take for the overall Hood Canal fall chum program occurs at Hoodsport, George Adams, and McKernan (see below); the stock is managed as a composite stock and the egg-take is adjusted at each hatchery to meet the total program needs.

OPERATIONAL CONSIDERATIONS

- Egg take at Hoodsport occurs from mid-October to November 10; egg takes at George Adams and McKernan occur from mid-November to the end of the run.
- All adult returns to the hatchery are collected, to reduce straying.
- Fingerlings at George Adams are released after April 1, to avoid interactions with listed summer chum.
- All releases are unmarked.
- Because of the size of the program, reused water is needed to maintain acceptable fry loadings. Also, the size of the egg take makes it necessary to transfer some eggs to McKernan for eyeing.
- The program also involves the transfer of 2.35 million early-reared fry at 800 fish per pound to Hoodsport for final rearing and release.

BENEFITS AND RISKS

A. Consistent with short-term and long-term goals?

[20] *In the case of a segregated harvest program, population viability ratings are low, medium and high and refer to the stock's ability to sustain itself in the culture environment.*

The short- and long-term goal for this stock is harvest, and the program is being operated in a manner consistent with this goal.

B. Likelihood of attaining goals?
The program consistently makes a contribution to recreational, commercial and tribal harvest.

C. Consistent with goals for other stocks?
Considering the size of the fish at release, the program is not likely to pose any significant ecological risk to other species of salmonids in Hood Canal. Also, the timing of release should ensure that risks to listed Hood Canal summer chum are minimal. The number of fish released, however, likely poses a risk of competition with wild fall chum juveniles in Hood Canal. In addition, because of the size of the program, the straying of hatchery adults may present genetic risks to wild Hood Canal fall chum populations, particularly wild fall chum population in the Skokomish system.

RECOMMENDATIONS

- Reduce the size of the George Adams and McKernan programs in order to address loading and density problems, and further adjust the program's size to be consistent with harvest goals and goals for other stocks. Since the program consistently produces unharvested returns that exceed escapement needs, it should either be reduced or additional harvest options should be explored that take full advantage of harvest opportunities. Or, consolidate the Skokomish fall chum hatchery program at McKernan.
- If the program is continued at this facility:
  - Continue to collect all adults returning to George Adams (to reduce straying) and ensure that the egg takes represent the entire Skokomish River fall chum run timing.
  - Monitor harvest and surpluses.
  - Cease all out-of-watershed transfer of eggs and fry to other Hood Canal hatcheries.
  - Institute a program to identify hatchery fish, to determine the level of straying into the Skokomish River.
  - Upgrade the adult collection facility, so that the sorting of returning adults is possible.
  - Take into account the need for reusing water in determining the program's size.

COMMENTS

- Downsizing the fall chum program in the manner recommended above should: 1) reduce the risk of catastrophic loss resulting from overtaxing the hatchery's water supply capabilities; 2) eliminate the problems of dealing with large surplus returns to the hatchery; and 3) reduce the threats (both ecological and genetic) to wild fall chum stocks in the Skokomish River. This should all be possible without compromising the attainment of the region's harvest goals.
- Consolidation of the Skokomish River fall chum programs into a single facility would appear to promote opportunities for cost-effective management.
- Discontinuing the fall chum program at George Adams would necessitate the collection and "surplussing" of all fall chum adults returning to the hatchery for up to five years following cessation of the program (to reduce straying).

MANAGERS RESPONSE

The co-managers began reviewing WDFW's Hood Canal hatchery programs in the summer of 2003. This effort has included describing where problems with exceeding production capacity exist, identifying operational problems at the hatcheries, and considering options to address these problems. The co-managers expect this review will lead to positive program changes to the George Adams hatchery fall chum program that are consistent with the HSRG area wide recommendations. Results of the review are expected to be available early in 2004.

The co-managers plan to continue, for the present, fall chum egg and fish transfers within the Hood Canal hatchery complex (Hoodsport, George Adams, and McKernan hatcheries) while following the established fish health protocols designed to minimize risks. In addition, the egg take within the complex will continue to represent the entire "early fall" hatchery chum return timing, to facilitate management of harvest on "early fall" hatchery chum while protecting later timed wild chum.

The co-managers agree with the HSRG recommendations to upgrade the adult collection facility and will discuss a program to facilitate the identification of fish of hatchery origin. However, implementation of these recommendations will require additional funding.

APPENDIX 3.

Columbia River Basin Legal Framework Relative to the Service Hatchery Production Review Process

1. ***U.S. v. Oregon*** court case – The *U.S. v. Oregon* court case provides the legal context for harvest management in the Columbia River with direct ties to coastal fisheries. Hatchery production in the Basin has become an integral part of past and recent agreements between the parties in trying to address treaty fishing rights and tribal trust responsibilities. See Court Ordered Management Agreements and Treaty Trust Responsibilities sections below.

2. **Court Ordered Management Agreements** – The expired Columbia River Fish Management Plan and other recent Interim Management Agreements are Stipulated Court Orders signed by the U.S. District Court that codify agreements of the co-managers for harvest and production management in the Columbia River Basin. Production levels, release locations, brood stocks, marking protocols, and other production parameters are often defined in these agreements on a facility, species, and program basis.

3. **Endangered Species Act (ESA) Compliance** – Hatchery programs must not jeopardize listed species. Hatchery programs should be managed to minimize negative impacts on listed species and be realigned, where possible within authorizing legislation, to support listed species recovery efforts. All Service hatchery facilities are undergoing Section 7 consultation and/or Section 10 ESA permit application compliance procedures to obtain ESA coverage for our hatchery programs. Development of Hatchery and Genetic Management Plans (HGMPs), Biological Assessments and Biological Opinions are a joint effort between the Service and NOAA Fisheries to examine our hatchery programs and their potential effects on listed species.

4. **Treaty Trust Responsibilities** – Conducting fish production and supporting tribal fish production programs in an effort to provide meaningful fisheries for Native Americans is central to meeting tribal trust responsibilities and treaty Indian fishing rights for the Columbia River tribes. All of our National Fish Hatcheries (NFHs) and Lower Snake River Compensation Program (LSRCP) facilities produce fish that directly benefit tribal production programs and/or provide fish for tribal harvest opportunities.

5. **Mass Marking Legislation** – Section 138 of FY 2003 Omnibus Appropriations Act (PL 108-7) and Section 129 of FY 2004 Interior and Related Agencies Appropriations Act (PL 108-108) requires the mass marking of Chinook, coho, and steelhead released from federally operated or federally financed hatcheries that are produced for the purpose of harvest (e.g., most mitigation programs). The mass making mandate does not apply to fish that are produced for a conservation purpose such as supplementation and restoration programs. The vast majority of fish released from Service hatcheries is targeted for harvest as mitigation for lost or degraded habitat, and thus, most hatchery programs of the Service falls under the mass marking mandate.

6. **Mitigation Responsibilities from Authorizing Legislation** – Most of our NFHs and all the LSRCP facilities have a direct link to legislation authorizing the facilities for mitigation purposes.
    a. All of the lower Columbia River and gorge area NFHs except Warm Springs NFH (i.e., Eagle Creek, Carson, Little White Salmon, Willard, and Spring Creek NFHs) are wholly or partially funded by Mitchell Act, a NOAA Fisheries funded program that supports unspecified mitigation for Columbia River Basin development (i.e., no species are defined nor juvenile or adult production goals).
    b. The Leavenworth NFH Complex (Leavenworth, Entiat, and Winthrop NFHs) is funded by the Bureau of Reclamation as mitigation for the construction and operation of Grand Coulee Dam. These facilities also have no species defined nor juvenile or adult production goals.
    c. The Dworshak NFH steelhead program is funded by the Army Corps of Engineers as mitigation for Dworshak Dam and does have an adult production goal to return 20,000 North Fork Clearwater (Group B) steelhead to above Lower Granite Dam each year.
    d. Spring Creek and Little White Salmon NFHs are partially funded by the Corps of Engineers, along with the Bonneville State Hatchery (SH), to mitigate for the construction and operation of the John Day Dam and Locks project. The equivalent production from 30,000 adult spawning fall Chinook is the production goal for this program which the *U.S. v. Oregon* Technical Advisory Committee estimated to be approximately 120,000 fish across all affected fisheries and escapements. Spring Creek/Little White Salmon NFHs are to produce one-half of this production and Bonneville SH the other half.
    e. The Lower Snake River Compensation Program, originally funded by the Corps of Engineers as mitigation/compensation for the construction and operation of the four lower Snake River mainstem dams, is now funded by the Bonneville Power Administration under a direct funding agreement to the Service with Federal Columbia River Power System rate payer dollars. The LSRCP, with numerous facilities spread across Idaho, Oregon, and Washington, has species specific numerical adult return goals for each facility and program. This program by far has the most clearly defined mitigation goals in its authorizing legislation.