NORTHWEST POWER PLANNING COUNCIL
851 S.W. SIXTH AVENUE, SUITE 1100
PORTLAND, OREGON 97204-1348

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Phone: 503-222-5161 1-800-452-5161
Internet: www.nwcouncil.org

NWPPC Artificial Production Advisory Committee

Date: April 17, 2003
10:00 AM to 4:00 PM

Location:
NWPPC
851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348

Meeting Packet

Northwest Power Planning Council's
Artificial Production Review & Evaluation

Artificial Production Advisory Committee
Date: Thursday April 17, 2003

Meeting Packet Contents

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NWPPC Artificial Production Advisory Committee

Draft Meeting Agenda for Anadromous and Resident Fish Workgroup
Date: Thursday April 17, 2003
Time: 10:00 AM to 4:00 PM
Location: Northwest Power Planning Council
851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348

Conference Call in Number -1-800-452-5170 pass code

Item No.	Subject	Time Period From	To	Presenter(s)
1	**General Introduction** Update since last meeting Purpose of meeting / APRE / Draft HGMP Project background / status / outlook	**10:00 AM**		**Bruce Suzumoto / Dan Warren**
2	**Members Introduction** (Pages 5-8)			
3	**Administrative Issues and Questions** Review Agenda for additions / changes (Pages 1-2) Minutes and attachments from last meeting (Pages 9-18)		**10:30 AM**	**Dan Warren**
4	**APRE / Draft HGMP Project overview and status** Current schedule overall project status (Page 20) Tasks to complete (Page 21) Deliverables /data base/ program reports/ final reports (Page 22, 23) APRE link to HGMP Process NOAA Fisheries / Link to HGMP Phase II and III (NOAA Process) (Pages 24-29)	**10:30 AM**	**11:30 AM**	**Bruce Suzumoto / Dan Warren / Lars Mobrand** **Rick Applegate or Bob Foster**
5	**Overview of Programs covered (Anadromous / Resident)** Stocks and programs covered (APRE / HGMP) (Pages 30-34) Status of Hatchery Program data , what is missing, status of data (APRE / HGMP) /support needed	**11:30 AM**	**12:00 Noon**	**Lars Mobrand**
	LUNCH	**12:00 Noon**	**1:00 PM**	
6	**Example of a specific program / uses of reports** APRE and HGMP reports(APRE / HGMP) and explanation of each (Anadromous) APRE Report (Resident)	**1:00 PM**	**2:00 PM**	**Lars Mobrand**
7	**APRE Final Reports** (Page 49)	**2:00 PM**		**Bruce Suzumoto / Lars**

				Mobrand
8	**APRE Implementation** (Page 50) Relationship to Final HGMP's		**3:00 PM**	**Bruce Suzumoto**
9	**Comments / Next Steps / APRE / HGMP / Discussion**	**3:15 PM**		**Bruce Suzumoto / Dan Warren**
10	**Next Meeting Time and Place / Final Wrap up / Other**		**4:00 PM**	**Bruce Suzumoto**

The times listed for specific agenda items, and the order of these items, are approximate and are subject to change. Public comment will be taken after each agenda item as time allows.

Artificial Production Advisory Committee

(April 3, 2003 update)

Organization	Name	Address	Phone No	E-mail
Northwest Power Planning Council				
Northwest Power Planning Council	**Bruce Suzumoto** **Mark Fritsch** **Dan Warren** **Cari Adamek**	851 SW 6th Ave. Suite 1100 Portland, OR 97204	503-222-5161	bsuzumoto@nwppc.org mfritsch@nwppc.org warrenasc@comcast.net cadamek@nwppc.org
Columbia Basin Fish and Wildlife Authority				
Columbia Basin Fish and Wildlife Authority	**Neil Ward**	2501 SW First Ave., Suite 200 Portland, OR 97201-4752	503-229-0191	neil@cbfwf.org
Tribal				
Confederated Tribes of the Colville Reservation	**Joe Peone / Jerry Marco/ John Arterburn**	Highway 155 N. / P.O. Box 150 Nespelem, WA 99155	509-634-2113	joepeone@colvilletribes.com cctfish@mail.wsu.edu john.arterburn@colvilletribes.com
Spokane Tribes of Indians	**Tim Peone**	Alex Sherwood Bldg., Main St. / P.O. Box 100 Wellpinit, WA 99040	509-258-7020	tpeone@aol.com
Kalispel Tribe of Indians	**Joe Maroney**	1981 N Leclerc Rd. / P.O. Box 39 Usk, WA 99180	509-445-1147	jmaroney@knrd.org
Kootenai Tribe	**Sue Ireland**	County Rd. 38A / P.O. Box 1269 Bonners Ferry, ID 83805	208-267-3620	ireland@kootenai.org
Coeur d'Alene Tribe	**Ronald Peters**	850 A Street / P.O. Box 408 Plummer, ID 83851	208-686-6307	rlpeters@cdatribe.org
Nez Perce Tribe	**Ed Larson**	Main St. / P.O. Box 365 Lapwai, ID 83540	208-843-7320	edl@nezperce.org
Confederated Tribes of the Umatilla Indian Reservation	**Brian Zimmerman**	Old Mission Highway / P.O. Box 638 Pendleton, OR 97801	541-276-4106	brianzimmerman@ctuir.com
Confederated Tribes of the Warm Springs Reservation of Oregon	**Bob Spateholts** **Terry Luther**	4223 Holiday St. / P.O. Box C Warm Springs, OR 97761	541-553-2045	bspateholts@wstribes.org luther@wstribes.org
Yakama Nation	**Tom Scribner**	4067 NE 23rd Ave. Portland, OR 97212	503-331-9850	scribner@easystreet.com
Shoshone-Bannock Tribes of the Fort Hall Reservation	**Chad Colter** **Keith Kutchins**	29 Shoshone Dr. / P.O. Box 306 Fort Hall, Id 83203	208-478-3761	rezfish@poky.srv.net kkutchins@shoshonebannocktribes.com

Shoshone-Paiute Tribes of the Duck Valley Reservation	**Guy Dodson, Sr.**	Highway 51 Stateline/ P.O. Box 219 Owyhee, NV 89832-0219	208-759-3246	dvirfg98@aol.com
Columbia River Inter-Tribal Fish Commission	**Doug Dompier**	729 NE Oregon St., Suite 200 Portland, OR 97232	503-731-1292	domd@critfc.org
Upper Columbia United Tribes	**Bill Wiles**	1500 W 4th Avenue, Suite 406 Spokane, WA 99204	509-838-1057	bwiles@aimcomm.com
Federal				
Bonneville Power Administration	**Peter Lofy**	P.O. Box 3621 Portland, OR 97208-3621	503-230-4193	ptlofy@bpa.gov
National Marine Fisheries Service	**Bob Foster**	F/NWR2 510 Desmond Drive Lacey, WA 98503	360-753-9594	robert.foster@noaa.gov
U.S. fish and Wildlife Service	**Lee Hillwig**	Columbia Basin Ecoregion 911 NE 11th Ave. Portland, OR 97232	503-872-2766	lee_hillwig@fws.gov
State				
Idaho Department of Fish and Game	**Tom Rogers**	600 S. Walnut St. / P.O. Box 25 Boise, ID 83707	208-334-3791	trogers@idfg.state.id.us
Oregon Department of Fish and Wildlife	**George Nandor**	2501 SW First Ave. / P.O. Box 59 Portland, OR 97207	503-872-5252	george.f.nandor@state.or.us
Washington Department of Fish and Wildlife	**Chuck Johnson / Andy Appleby Darrell Mills**	600 Capital Way N. Olympia, WA 98501-1091	360-902-2653	Johnscwj@dfw.wa.gov appleaea@dfw.wa.gov millsdwm@dfw.wa.gov
Montana Department of Fish, Wildlife and Parks	**Gary Bertellotti**	1420 E 6th Ave. / P.O. Box 200701 Helena, MT 59620-0701	406-444-2447	gbertellotti@state.mt.us
Utilties				
Chelan PUD	**Steve Hayes**	327 N. Wenatchee Ave./ P.O. Box 1231 Wenatchee, WA 98807	509-663-8121	Steveh@chelanpud.org
Grant County PUD	**Stuart Hammond**	P.O. Box 872 Ephrata, WA 98823	509-754-5064	shammon@gcpud.org
Non-Governmental Organization				
Native Fish Society	**Bill Bakke**	P.O. Box 19570 Portland, OR 97280	503-977-0287	bmbakke@teleport.com
Independent Science				
Oregon State University	**Ian Fleming**	Hatfield Science Center 2030 S.E. Marine Science Drive Newport, OR 97365	541-867-0255	Ian.fleming@hmsc.orst.edu
Consulting for NWPPC				
	Steve Smith	8462 S. Heinz Rd Canby, OR 97013	503-263-1253	huntersmith@canby.com

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PACIFIC NORTHWEST ELECTRIC POWER

AND CONSERVATION PLANNING COUNCIL:

CHARTER OF THE ARTIFICIAL PRODUCTION ADVISORY COMMITTEE

1. Official Designation: This advisory committee will be known as the Pacific Northwest Electric Power and Conservation Planning Council's Artificial Production Advisory Committee.

2. Background: The Northwest Power Act, P.L. 96-501, 16 U.S.C. §839 et seq. (Act), in Section 4(h)(1)(A), requires the Council to develop a fish and wildlife program for the Columbia River Basin. The Program establishes the creation of Artificial Production Advisory Committee in order to achieve a regional perspective and a unified approach to artificial production reform. The Artificial Production Advisory Committee is intended to provide the Council with advice on artificial production reform and assist the Council in implementing those reforms. This advisory committee is established as part of a network of advisory committees satisfying the Council's obligation under the Act to establish a Scientific and Statistical Advisory Committee. 16 U.S.C. §839b(c)(11). Under section 4(a)(4) of the Act, the terms of the Federal Advisory Committee Act, 5 U.S.C. Appendix I, Sections 1-14, apply "to the extent appropriate" to the Council's advisory committees. 16 U.S.C. §839b(a)(4).

3. Objectives and Scope of Activity: The Artificial Production Advisory Committee will advise the Council on the implementation of artificial production reform and realignment in the Columbia basin. It will attempt to coordinate these changes in the most consistent and efficient manner possible. The Artificial Production Advisory Committee will fulfill this role by:

   (A) Assisting the Council in evaluating the appropriate purposes of artificial production programs and facilities.
   (B) Advising the Council on the most effective ways to implement artificial production strategies described in the 2000 Columbia River Basin Fish and Wildlife Program (Council document 2000-19) and policies and recommendations outlined in the Artificial Production Review report (Council document 99-15).

(C) Assisting the Council in determining appropriate artificial production performance standards.
(D) Proposing actions to the Council to achieve the intended reform.
(E) Helping to identify sources of artificial production information and data.
(F) Assisting in the review of specific artificial production programs.
(G) On a quarterly basis, reporting to the Council on the status of artificial production reform in the basin.

4. Official to Whom the Advisory Committee Reports: The Artificial Production Advisory Committee will report to the Executive Director of the Council.

5. Authority of the Advisory Committee: The Artificial Production Advisory Committee will serve in an advisory capacity only. Neither the Committee nor its members are authorized to make statements or commitments on behalf of the Council. Committee members will not be considered to be members of the Council staff.

7. Advisory Committee Management Officer: The Advisory Committee Management Officer for the Artificial Production Advisory Committee will be the Director of the Council's Fish and Wildlife Division. The Management Officer will designate members of the Council's staff to attend meetings of the Committee.

8. Appointment of Artificial Production Advisory Committee Members: Members will be appointed by the Council. Membership will include individuals from fish and wildlife agencies, tribes, independent scientists, and representatives of non-governmental organizations.

9. Length of Committee Membership: Artificial Production Advisory Committee members will serve two years. Terms may be staggered to maintain some continuity to the Committee.

10. Chairperson:

(A) The Chairperson will be a Council staff member designated by the Management Officer.

(B) The Chairperson may be called upon to report to the Executive Director of the Council on appropriate matters, including the Advisory Committee's progress on the tasks described in Part 3 of this Charter.

(C) The duties of the Chairperson will include presiding over Artificial Production Advisory Committee meetings, ensuring that detailed minutes of such meetings are prepared and submitted to the Executive Director of the Council in a timely manner, and maintaining communication between the Committee and the Council's staff.

(D) The Chairperson will certify detailed minutes of meetings of the Artificial Production Advisory Committee. The minutes will include a description of matters discussed, conclusions reached, actions taken, persons invited to meet with the Committee, and

persons in attendance. The minutes also will include copies of reports received, issued or approved by the Committee. Minutes of meetings will be prepared and released within ten days of the meeting, unless an extension is granted by the Management Officer. The Management Officer will distribute copies of the minutes to members of the Committee and the other interested persons.

(E) Sub-groups of the Artificial Production Advisory Committee may be established by the Chairperson of the Committee to undertake particular aspects of the Committee's work. Methods for organizing the work and procedures of the Committee must follow the scope of responsibilities assigned to the Committee by the Council. The work of the staff for the Committee will include making arrangements for Committee meetings, solving logistical problems, and providing clerical services.

(F) The Chairperson will be responsible for calling meetings, setting the agenda, closing meetings, coordinating work with the Council, and managing the business functions.

11. Policy: The advisory committee policy approved and adopted by the Council on May 17, 1982, as amended from time to time, will apply to the Artificial Production Advisory Committee.

12. Estimated Frequency of Committee Meetings: The Chairperson of the Artificial Production Advisory Committee, after consultation with the Management Officer, or his designee, will call meetings as necessary. All meetings will be open to the public, unless closed pursuant to 5 U.S.C. §552b(c). Timely notice of meetings, including agendas, will be given. Interested persons may attend Committee meetings and appear before or file statements with the Committee, subject to such reasonable rules as the Committee may prescribe.

13. Reimbursement of Expenses: The Council will reimburse Artificial Production Advisory Committee members for travel costs, including per diem in lieu of subsistence in accordance with the Council's travel regulations for contractors and advisory committee members, for the purpose of attending Committee meetings as authorized by 5 U.S.C. §5703. In addition, the Council may contract with Board members or others to carry out specific tasks. In particular cases, and with Council approval, the Artificial Production Advisory Committee may recommend the use of consultants to accomplish an assigned task.

14. Duration: The Artificial Production Advisory Committee will terminate two years from the filing date of this Charter, unless renewed in accordance with the Federal Advisory Committee Act. All members of the Committee serve at the pleasure of the Council.

This Charter for the Artificial Production Advisory Committee was approved and adopted at a duly called meeting of the Pacific Northwest Power and Conservation Planning Council, _____, in _____, _____.

PACIFIC NORTHWEST ELECTRIC POWER
AND CONSERVATION PLANNING COUNCIL

By: _____
Frank L. ("Larry") Cassidy, Chairman

Date Filed: _____

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Draft Schedule for the Artificial Production Review and Evaluation (APRE) and Draft HGMP's

Updated April 14, 2003

Province "Groups" Workshop Schedule

Project Task No.	Project Tasks	Columbia Gorge	Columbia Plateau South	Plateau South / Blue Mt/ Mt. Snake	Columbia Plateau North	Columbia Cascade	Inter-mountain	Mountain Columbia	Middle Snake/ Upper Snake	Lower Columbia/ Columbia Estuary
	Provincial Workshop 1 (Date)	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete
	Provincial Workshop 2 (Date)	16-Apr-03	22-Apr-03	22-Apr-03	29-Apr-03	29-Apr-03	08-May-03	08-May-03	08-May-03	21-May-03
	Provincial Workshop 2 (Location)	Stevenson, WA	Pendelton, OR	Pendelton, OR	Yakima, WA	Yakima, WA	Spokane, WA	Spokane, WA	Spokane, WA	Vancouver, WA

Province "Groups" Detailed Report Preparation Tasks

Task 1	Form 1 completion / follow-up	24-Jan-03	24-Jan-03	7-Feb-03	24-Jan-03	21-Feb-03	7-Feb-03	7-Feb-03	21-Feb-03	14-Feb-03
Task 1	Form 2 completion	24-Jan-03	24-Jan-03	28-Mar-03	24-Jan-03	28-Mar-03	28-Mar-03	28-Mar-03	28-Mar-03	18-Apr-03
	Initial APRE reports completed	31-Jan-03	6-Mar-03	9-Apr-03	6-Mar-03	9-Apr-03	4-Apr-03	4-Apr-03	9-Apr-03	25-Apr-03
Task 2	Draft APRE instruction mail-out /web posting	7-Feb-03	7-Mar-03	11-Apr-03	7-Mar-03	11-Apr-03	11-Apr-03	11-Apr-03	11-Apr-03	29-Apr-03
Task 2	Managers/Operators first review of APRE reports (pre-workshop)	6-Apr-03	12-Apr-03	12-Apr-03	19-Apr-03	19-Apr-03	28-Apr-03	28-Apr-03	28-Apr-03	11-May-03
Task 3	**Workshop 2 - "exit interview"**	**16-Apr-03**	**22-Apr-03**	**22-Apr-03**	**29-Apr-03**	**29-Apr-03**	**8-May-03**	**8-May-03**	**8-May-03**	**21-May-03**
Task 4	**Managers/Operators final review of APRE reports (post-workshop) completed / Original**	**22-Apr-03**	**28-Apr-03**	**28-Apr-03**	**5-May-03**	**5-May-03**	**14-May-03**	**14-May-03**	**14-May-03**	**27-May-03**
Task 5	**Draft HGMP's delivered to managers / Original**	**29-Apr-03**	**5-May-03**	**5-May-03**	**12-May-03**	**12-May-03**	**21-May-03**	**21-May-03**	**21-May-03**	**3-Jun-03**
Task 4	***Managers/Operators final review of APRE reports (post-workshop) completed / Revised***	***30-Apr-03***	***6-May-03***	***6-May-03***	***13-May-03***	***13-May-03***	***20-May-03***	***20-May-03***	***20-May-03***	***4-Jun-03***
Task 5	***Draft HGMP's delivered to managers / Revised***	***7-May-03***	***13-May-03***	***13-May-03***	***20-May-03***	***20-May-03***	***27-May-03***	***27-May-03***	***27-May-03***	***11-Jun-03***
Task 6	Preparation of APRE Report Complete	30-Jun-03	30-Jun-03	30-Jun-03	30-Jun-03	30-Jun-03	30-Jun-03	30-Jun-03	30-Jun-03	30-Jun-03
Task 7	Co-managers responses to APRE Report completed	7-Jul-03	7-Jul-03	7-Jul-03	7-Jul-03	7-Jul-03	7-Jul-03	7-Jul-03	7-Jul-03	7-Jul-03
Task 8	Final Report Completed	31-Jul-03	31-Jul-03	31-Jul-03	31-Jul-03	31-Jul-03	31-Jul-03	31-Jul-03	31-Jul-03	31-Jul-03

Notes:
Workshop 1: Defining Program Purposes, Goals and Objectives
Workshop 2: Reviewing Draft Final Reports / exit interview

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March 22, 2002

Artificial Production Advisory Committee - Resident Fish Workshop
Date: March 15, 2002
Time: 10:00 AM to 2:00 PM
Location: Ramada Inn Airport (Spokane International Airport)

Agenda Items

1. **General Introduction**
2. **Members Introduction**
3. **Administrative Issues and Questions**
4. **Overview of HSRG Process in Washington**
5. **Overview of Description of Work for Each Province**
6. **Project Implementation and Completion Schedule**
7. **Specific Review of Data and Information Collection and Provincial Work for Contractors / Tribes and Agencies**
8. **Wrap up**
9. **Public Comment**

The presentation content was from a meeting packet that is posted on the Northwest Power Planning Council's web site at www.nwcouncil.org.

Bruce Suzumoto opened the meeting at 10:15 am. This meeting was a meeting of the resident fish workgroup members of APAC.

Bruce Suzumoto – Start hatchery evaluations in late April. The evaluations will be phased in by provinces starting with Intermountain, Gorge, and Mountain Columbia. Recent Council efforts on the hatchery evaluation have focused on working with BPA on contracting issues and coordinating with NMFS on HGMP and other ESA integration.

The Council process will be integrated with NMFS' ESA HGMP process to get joint products. Council and NMFS will move in parallel for the initial part of the evaluations and HGMP development, and then split off to pursue their individual programmatic and regulatory needs.

Keith Underwood – Would like to discuss how the hatchery evaluation process relates to the USFWS process for bull trout.

Rich Johnson – USFWS is looking at the HGMP template and may make some modifications so it can be used for resident fish. Trying to keep it simple. Hope to have more guidance soon. The HGMP template requires much more information than necessary for a resident fish consultation, but may still just adopt the template.

Guy Dodson – Will private aquaculture be required to write HGMPs? Also concerned about consultation above the Hells Canyon Dam.
Rich Johnson – Doesn't think USFWS will be using the HGMP for private aquaculture. May be using HCP process instead to review private aquaculture programs.

John Arterburn – Concerned about where resident fish production information was going to be stored when it doesn't involve listed species, either in the hatchery or in the stocked waters. Nobody has stepped up to warehouse and maintain the information.

Lars Mobrand – Made a presentation on the hatchery reform process in Puget Sound. Initial reaction by fishery managers of propagation programs to ESA was defensive. Rather than react defensively, the Puget Sound process refocused to address hatcheries in a positive, opportunistic manner, finding means to reduce risks and increase benefits. Puget Sound parties set up a unique, science panel consisting of independent scientists and management biologists.

The panel wanted to work on how to make hatcheries successful in meeting overall goals. This required that goals be first established or clarified. Also managers must decide habitat goals and harvest goals before one can decide how to set goals for integrated production programs. Initially, the panel had to establish a scientific framework for success in hatcheries. Can get this information on the website. See www.lltk.org/hatcheryreform.html.

The panel avoided the polar arguments surrounding hatchery issues. They didn't think much of a constructive natural would come from these debates. The panel segmented Puget Sound into smaller regions. The Panel put the context of hatcheries in a broader context, engaging habitat, hatchery, and harvest managers. Must have flexibility – can't run hatcheries based on a set of dogma. Must adjust to changing habitat, run status, social values, and knowledge – adaptive management. Recognized the tremendous resistance to change in organizations. Panel adopted adaptive management procedures that encouraged change and encouraged improving performance, rather than defending what was done prior. The panel tried to provide new ways of being responsive.

Panel got a very positive response from agency directors and key political leaders. This was important to getting support and making the changes in the management agencies. Must be sure that a process not only identifies changes, but also helps make the changes.

Lars Mobrand - recommends APAC look into the Puget Sound process and its philosophies. Don't want duplicative processes for NWPPC and ESA – find ways also to make the funds flow to make adaptations. Need to build an ongoing database – not a one-time data set. HGMPs help in making the database useful.

In Puget Sound, there was a lot of disparity in the quality of HGMPs. The panel process used the HGMPs as input. Must deal with uncertainty in a better manner by still moving forward – not allow "paralysis by analysis".

Need to focus more on science providing information to policy makers on benefits and risks – rather than providing information that doesn't allow decision makers to make a decision. Most importantly, need to know what society's values are and what society wants – the currency.

Ed Larson – need to quantify goals – a range of numbers.

Lars Mobrand – Can't do a top down goal setting, but a bottom up accumulation of what's doable.

Steve Smith – some differences between Puget Sound and Columbia that need to be addressed include a more complex political structure that has polar views of the role and value of hatcheries, different philosophies about the role and function of science panels, and different guidance from within key regulatory agencies.

Lars Mobrand – Those that push the polar arguments rarely are involved in the solutions. The experience of resolving problems is well honed in the Puget Sound area due to the Boldt Decision.

Results of the review included closing a hatchery, changing spawning protocols, reducing stock translocations, increasing focus on quality rather than quantity of production programs, and increasing and decreasing program sizes.

Lars Mobrand – Looked at resident fish programs where they interacted with anadromous fish, but have not yet reviewed programs affecting resident fish only.
Keith Underwood – Problems with getting common language, politics, and integration between resident and anadromous fish.
Lars Mobrand– Must deal with both when they co-exist.

Dan Warren – Must work on hatchery reviews by province and not resident versus anadromous.

Lars Mobrand – habitat changes factored significantly in the hatchery issues. The status of habitat and the expectations for its change directly affect the current goals of hatcheries and what role they might have in the future. Where habitat alterations will be changing significantly, then the production program must expect to change accordingly.

Lars Mobrand – Not only was the supply of salmon a large issue to commercial fishing interests, but also the economics – private aquaculture has permanently changed the economics of tribal and non-tribal commercial fisheries. The relative importance and demand for recreational fishing is increasing.

Lars Mobrand– set a deadline for time to analyze production programs in a region. Get 95% of value in a few months. Don't get paralysis by analysis.

Bruce Suzumoto – Explained 6 steps in hatchery review (pg 23 in packet). The objective is a final set of reports that will feed into subbasin planning. Another objective is clarity on funding needs to accomplish goals.

Lars Mobrand– Need to recognize the time constraints of fishery managers. Make good use of managers' time. Need to be sure information is accurate. A review cannot work without goals - the premise for the review. Need ownership of the information to ensure its accuracy and to be sure it is maintained.

Steve Smith – the hatchery review will not only gather information for improving the propagation program, but also as input to subbasin planning. Ultimately, subbasin plans will drive the local fishery and habitat goals and therefore the artificial production programs. Iterations between hatchery programs and subbasin plans will be necessary.

Keith Underwood – No matter what the Council uses the information for, as a manager I want the information to help improve my programs.

Lunch Break

Dan Warren – Presented information on the conduct of the hatchery evaluation. The process is being scheduled to integrate with subbasin planning. Dan is combining the HGMP template, with the Puget Sound template, and the earlier template drafted for this review. Contracting will be finalized in April. Hope to have the funding resolved in late March. The project contracts will be administered by the Council. Funds will go to fishery agencies and tribes, and independent contractors. Council will also be contracting the development of HGMPs that NMFS is requiring in ESA regulation.

Keith Underwood– Concerned that resident fish will be lower priority compared to anadromous fish in the funding process for HGMPs.

Bruce Suzumoto - Indicated that the completion of HGMPs for anadromous fish is an RPA in the Hydro BiOp and this carries greater urgency. Keith is still concerned about funding and whether resident fish programs and processes are "being set up to fail" due to lack of resources.

The group discussed the need for HGMPs be living documents. The Council and BPA may not appreciate the funding issues that arise from completion of HGMPs – funding

reforms, funding M&E programs to gather performance information, and funding the performance reviews that then lead to further adaptations.

Concerns were expressed that this process not lead to just other processes or to documents that die on the shelves.

Bruce Suzumoto - Solicited comments on whether the proposed evaluation process is in line with resident fish managers' expectations. The APAC members in attendance reacted comfortably with the process.

No urgency for the next meeting. The managers in the first 3 provinces will be contacted by the contractor team. Updates will continue via e-mail.

Need to proceed with the motto "How can I make my hatchery better".

Need to build coalitions around the hatchery reform concept to improve management.

Meeting ended at 1:50 pm.

These minutes are an accurate and complete summary of the matters discussed and conclusions reached at the Resident Workshop of the Artificial Production Advisory Committee held on March 15, 2002.

_____

Bruce Suzumoto

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April 23, 2002

Artificial Production Advisory Committee - Anadromous Fish Workshop
Date: March 21, 2002
Time: 10:00 am to 1:00 pm
Location: Northwest Power Planning Council
Portland, OR

Agenda Items

1. **General Introduction**
2. **Members Introduction**
3. **Administrative Issues and Questions**
4. **Overview of HSRG Process in Washington**
5. **Description of Work for Each Province**
6. **Schedules**
7. **Discussion of Data and Information Collection and Interviews / Responsibilities for Council / Contractors / NMFS / Tribes and Agencies**
8. **Wrap up**

The presentation content was from a meeting packet that is posted on the Northwest Power Planning Council's web site at www.nwcouncil.org.

Bruce Suzumoto opened the meeting at 10:08 am. This was a meeting of the anadromous fish workgroup members of APAC

Bruce Suzumoto – NWPPC is gearing up to start the Hatchery Evaluation process at the end of April or early May. NWPPC is finalizing fiscal issues with BPA, work products, and schedules. NWPPC has been meeting with NMFS to integrate the needs of the two organizations.

Bruce Suzumoto – Reviewed the agenda and introduced **Lars Mobrand** and his work up in Puget Sound. During the meeting, NMFS will discuss their plans for hatchery information. Finally, the group will review the planned tasks for the hatchery evaluation.

Bruce Suzumoto – Reviewed the work steps for the Artificial Production Review and Evaluation (APRE) (from packet). The early steps of APRE will be shared tasks with

NMFS, steps 1 and 2. Then APAC and NMFS will conduct parallel processes using the same data set.

Doug Dompier- Expressed concerned that reform of hatcheries may not occur. Concerned that outdated hatchery programs would be updated. **Bob Foster** assured Doug that the NMFS process will seriously look at hatchery reforms. **Larry Rutter** expressed uncertainty about how the Council and NMFS process will integrate back together. The outcomes of the NMFS ESA process and the APRE process are uncertain at this time. Doug is concerned about which process is in charge. Doug is concerned that existing hatcheries might just be modernized and not reformed.

Bruce Suzumoto – The APRE will review hatchery programs in the Gorge, Intermountain, and Mountain Snake provinces first.

Lars Mobrand – Puget Sound hatchery review has been ongoing now for 3 years. Hatcheries had unclear goals, uncertain performance, and required changes to meet the requirements of the ESA. A scientific panel was formed consisting of agency and independent scientists. The goal was to reform hatcheries to ensure increased benefits and reduced risks. The panel started with constructing a scientific framework from which to evaluate hatchery programs. The framework was peer reviewed. The Panel then created a Premise or Context for the hatchery programs – including goals for the programs and their relationship with habitat, harvest, and fish management objectives. Puget Sound was divided into regions similar to the Columbia Basin's provinces. Each region was then defined by its habitat conditions, harvest objectives, stock status, and long-term management goals. This information was gleaned from managers and other stakeholders. The premises were established to which the hatchery programs were evaluated (by program, not facility). The operations of the hatcheries were evaluated relative to the purpose and goals of propagation programs. The hatchery program was profiled through the application of about 150 questions. Much of this information was gathered from existing reports, supplemented with interviews with hatchery managers. This data gathering was followed by workshops with fishery managers to ensure accuracy of information. The Panel then developed conclusions about the propagation programs. These draft conclusions were then presented in a second workshop with fishery managers – an exit interview. The first report, including 3 Puget Sound regions, was finished in early 2002 and is available on the website for Long Live The Kings, www.lltk.org/hatcheryreform.html. The report has 281 reform recommendations. Some recommendations were broad-based, others were program and facility specific. Recommendations ranged from minor improvements to a recommended hatchery closure.

Doug Dompier – Followed the HSRG process. He liked the make-up of the HSRG – it included agency personnel and not only independent scientists. Doug expressed concerns about the about the membership of the ISAB and its recent conclusions regarding artificial production programs. Doug believes the membership of the ISAB should be more similar to the HSRG and that the Council should alter the membership of the ISAB.

Lars Mobrand – The attitude of the HSRG was on how to improve each program. The Panel found that many hatchery managers were disconnected from the overall management framework and appreciated having their ideas integrated into the reform process. The hatchery managers brought many good ideas into the review. These were integrated with an overall hatchery management framework and with the habitat goals. ESA issues were considered up front. The Panel made recommendations for decision makers and did not adopt the "paralysis by analysis" path. The HSRG supplemented the HGMP template with more benefit information and more cumulative effects analysis.

Doug Dompier – Expressed concern about the polarized hatchery processes and debates on the Columbia River.

Dan Warren – Explained the 6 steps of the APRE process and how some of them integrate with NMFS process (see pg 23 of packet). Liked the questionnaire used by the HSRG as it focused on risk and benefit issues. Have been working hard with NMFS on defining the common tasks.

Bob Foster – NMFS can use 1-time data collection, using existing HGMPs, existing BiOps, etc. Need to have a common data system with the APRE. Wants to see draft HGMPs completed early on – using same contractors as APRE. Then go to the managers to fill in the HGMP gaps to achieve a complete draft HGMP. Then these completed draft HGMPs will be used in the Collaboration process, including US v OR. Following the collaboration process, then final HGMPs will be done. The current APRE budget covers Phase I of the NMFS process. Another contract would need to be put together to fund Phase II collaboration.

Bruce Suzumoto– The original APRE budget process was for Phase I.

Larry Rutter – In the NMFS collaboration process, all of the relevant states and tribes will be involved in the discussions on each part of the Columbia River basin. Larry is concerned that in the Columbia River process there is no 3rd party pulling the entities along in a collaborative process. Puget Sound had both an HSRG and Jim Waldo pulling the managers. Don't need to reconstruct all of the entities in the Columbia Basin, but work through them.

Bruce Suzumoto – Is the TRT a scientific review body?

Larry Rutter– Haven't fully figured out yet how the TRT and the subbasin planners interact with each other and with the HGMP process. The TRT will be reviewing subbasin plans to consider their ability to recover the ESU. The Phase III, final HGMPs will reflect the interactions and iterations of the TRT and subbasin planners. In the Collaborative process, Larry expects 80-90% agreement on hatchery programs amongst fishery managers. For those programs for which there is not agreement, the alternatives would be provided to the TRT for their analysis.

Lars Mobrand – The review of hatchery programs needs to have assumptions about key issues such as ocean fisheries, mainstem fisheries, mainstem passage. Don't want to bring the debate on these issues into the hatchery reform process. If nothing else, be clear on the assumptions about these system issues because they have significant effects on the hatchery programs. These assumptions need to be made early in the process.

Doug Dompier – Wanted to be sure that the hatchery database is accurate this time around, not like the last time, earlier in the APR process.

Dan Warren – Presented the 5 tasks common to both the APRE and HGMPs (pg 28 of packet).

Larry Rutter – NMFS stills plans to have HGMPs hosted on a webpage to fulfill its ESA regulatory requirements, but they should be linked to a database system that can be queried for information. NMFS does not need to actually host the HGMP webpage – they could link to others' sites.

Lars Mobrand – Need to have one entity responsible for ensuring that the hatchery data set is current.

BREAK

Dan Warren – Presented schedules for the APRE (pg 29 of packet).

Bob Spateholts – In response to questions from Doug, NMFS will use HGMPs from managers of hatcheries. Where the HGMP does not exist, they will be put together in draft using the APRE consultants in collaboration with the hatchery managers. At Phase III, NMFS will need final HGMPs from the operating entity to meet ESA legal requirements.

Dan Warren – Presented information on who will be responsible for the various steps of the process (pg 32 of the packet). Much of the information will be gathered by contractors. States and tribes will receive funds to participate with contractors in gathering and reviewing information, including participation in workshops.

Larry Rutter – The Premises that are needed for this APRE will be determined in Step 2. These assumptions need to be developed by managers and consultants together.

Doug Dompier – Interested in knowing who will be the consultants in the process. Larry and Lars responded that the data collection phase is an unbiased process and should be based on the ability of the consultants to gather the information. Doug expressed concern about the possible use of Stephen Smith given his employment history with NMFS.

Dan Warren – Will expand the list of participants of the 5-step process to include staff of fishery managers.

Bruce Suzumoto – Will hold off on setting the next meeting date for APAC. The next communication will be the Council staff and contractors contacting fishery managers in the initial provinces.

Bob Spateholts – There needs to be contacts with the hatchery managers to determine funding needs for data collection.

Dan Warren – The funding now is for Phase I, to complete the first draft of HGMPs. The funding for NMFS' Phase II and III is not understood yet and determined. Everyone agreed that more detail needs to be generated to explain Phase II and III and how the APRE and HGMP process converge later in the process. Dan will be staying in touch with APAC members with e-mail updates.

Meeting ended at 12:55 pm.

These minutes are an accurate and complete summary of the matters discussed and conclusions reached at the Anadromous Workshop of the Artificial Production Advisory Committee held on March 21, 2002.

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Bruce Suzumoto

The Artificial Production Review and Evaluation

Over the past several years, independent scientific reviews of Columbia River hatcheries have uniformly concluded that change is needed. The purpose of many artificial programs in the basin is currently unclear. While many artificial production programs were built to mitigate the impact of dams or to produce fish for harvest, their role today is less certain. There also is great concern about whether or not artificially produced fish adversely affect naturally spawning populations of fish.

To address these issues, Congress directed the Northwest Power Planning Council to conduct a review of artificial production in the Columbia Basin. The Council completed the first phase of the Congressionally mandated review by producing the *Artificial Production Review*, a report that outlined recommendations to reform hatchery practices. 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 to 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. 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.

Artificial Production Review and Evaluation

Detail of Tasks to Complete for Co-Managers

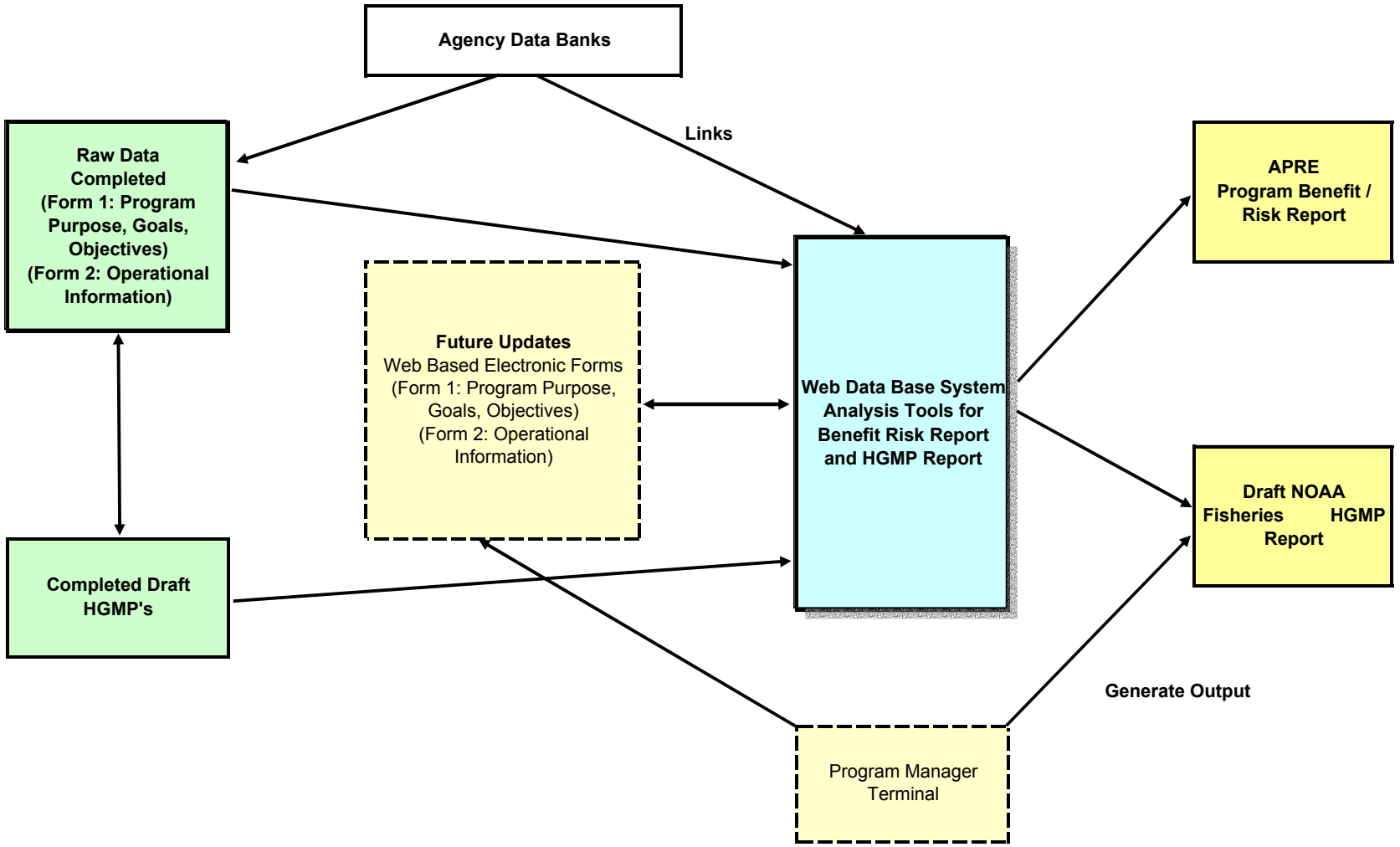
Task	Task Description
1.	**Complete draft APRE/HGMP database. This is accomplished by completing Forms 1 and 2.**
2.	**Co-managers/operators review the APRE/HGMP database using the web-based APRE review tool/report generator. The purpose of this step is for the managers to review their programs and add and correct items in the database.** **Each hatchery program dataset will be password protected to assure that only persons authorized by the managers/operators can view and modify the information.** ***This review is scheduled to occur on a staggered basis by Province February through April, allowing 1 to 2 weeks for completing each program review. This task is the first review period (Pre-2nd workshop review)***
3.	**Workshops will be scheduled by Province to obtain feedback from the co-managers;** **a) on the status of the APRE/HGMP database,** **b) on the benefit-risk statements in the APRE report. By the time of this meeting the draft HGMP reports will be available for all hatchery programs.**
4.	**Co-managers/operators will again be given an opportunity to review the APRE/HGMP database using the web-based APRE review tool/report generator.** ***This review is scheduled to occur on a staggered basis by Province April, through May allowing 1 week follow-up for completing each program review. This task is the second and final review period (Post-2nd workshop)***
5.	**Draft HGMP's Delivered to Co-managers**
6.	**The report on hatchery reform will be drafted.** **The report will contain a section for each Province, based largely on summaries from the APRE/HGMP database, and a section covering the entire Columbia region.**
7.	**Co-managers will review the report to Congress and in the provided space have an opportunity to respond and comment on each section of the report.**
8.	**Report to Congress finalized, including the co-managers responses.**

Artificial Production Review and Evaluation / Draft HGMPs

DELIVERABLES / GOALS

Item	Deliverable Description
1.	**An electronic questionnaire that can capture the following:** • **General goals conservation and harvest of stocks potentially affected by hatchery programs** • **Purpose and objectives for all hatchery programs** • **Operational and cost information about all hatchery programs** • **Data and information needed to evaluate benefits and risks of each hatchery program** • **All additional data and information needed to complete a draft HGMP's for salmonid hatchery programs in the Columbia Basin** • **All additional data and information needed to complete the APRE review**
2.	**A database populated with (containing) the data and information (in quantitative, qualitative and narrative form) described in items 1. a-f.** ***This database will be the common, shared, and coordinated source of data and information for both the HGMP and APRE processes*****.**
3.	**A draft HGMP (derived from the database in item 2.) for each hatchery program in the basin.**
4.	**An analysis (based on data and information in item 2.) of all hatchery programs for consistency with goals for conservation and harvest and an overview of laws and agreements that set forth program objectives. Results of the analysis will be assembled in a draft report for each province. The information and conclusions reported in these documents will be provided to NMFS and other participants in the HGMP process so that any discrepancies between HGMP and APRE conclusions can be identified and resolved. The draft reports will be reviewed by regional managers and others though a series of workshops to be held in each province.**
5.	**A final set of documents containing conclusions and recommendations for all hatchery program, based on the analysis in item 4. These documents will incorporate comments from regional managers and hatchery operators in the province.**

APRE / HGMP Data Base Design



The Hatchery and Genetic Management Plan (HGMP) Process

And

Integration with Subbasin Planning, TRT/Recovery Planning, and US v OR

This document and the attached flowchart provide a brief overview of the process for developing Hatchery and Genetic Management Plans (HGMPs) for artificial production programs (hatcheries) in the Columbia River Basin. This process has been developed to implement Action 169 of the National Marine Fisheries Service (NOAA Fisheries) December, 2000 Biological Opinion (BiOp) on the Federal Columbia River Power System (FCRPS). In addition, because this effort overlaps with a number of concurrent and interrelated processes underway in the Basin, it also describes linkages between the HGMP process and those other processes.

Artificial Production and HGMPs. Artificial production is not a goal in itself. Rather, it is a strategy for achieving fishery and resource objectives, and often involves trade-offs between risks and benefits. The risks include various types of deleterious effects on natural populations, including genetic, ecological, and management effects. The benefits may include greater numbers of fish for harvest, reduction in extinction risk due to demographic boost of listed fish, and other potential uses for recovery purposes (e.g., reintroduction into restored habitat; safety net projects). An HGMP is simply a detailed plan that describes how an artificial production program for a given species at a given facility (or facilities) will be operated for a given period of time. Thus, a good HGMP represents a reasoned "solution" between risks and benefits, informed by the best available science.

HGMPs, the Columbia River Basin, and the Endangered Species Act (ESA). Due to the pervasive presence of salmon and steelhead listed under the ESA in the Columbia River Basin, and because artificial production programs affect these listed fish, operators of those programs must consult with NOAA Fisheries and obtain approval under the ESA for their operation. There are a number of different approval mechanisms provided under the ESA – sections 4(d), 7, and 10 – but HGMPs are now utilized to focus the required consultations irrespective of which mechanism applies. And, in all cases, approval of an HGMP by NOAA Fisheries means that the programs have been found to be in compliance with the substantive requirements of the ESA. However, HGMPs are not envisioned to be permanent or unchanging plans. It is expected that they will be subject to modification over time based on new information and insights, including proposals and recommendations provided by the Artificial Production Review and Evaluation, Subbasin Planning, US v Oregon proceedings and other sources.

HGMPs and Hatchery Reform. As noted above, operators of hatchery programs in the Columbia Basin need ESA approval for their programs due to the impacts of those programs on listed fish. They are responsible for operating their programs in compliance with the ESA. Obtaining ESA approval in many cases will require that previous practices be modified to address ESA. These modifications, a subset of a larger class of activities known generally as "hatchery reforms," include operational and facility changes designed to reduce risks posed to listed fish by hatchery production, or otherwise to contribute to the conservation and recovery of listed salmon and steelhead. The larger class of hatchery reforms also includes hatchery modifications intended to better define and achieve production and harvest objectives that are not necessarily related to ESA.

The FCRPS Biological Opinion and Hatchery Reform. The FCRPS Action Agencies share an interest in hatchery reform with hatchery owner/operators. Both desire to reduce the deleterious impacts of artificial production programs on listed fish and contribute to their recovery. In particular, the Action Agencies' interests stem from their need to find "offsite mitigation" survival improvements for listed fish affected by the FCRPS. Toward this end, Action 169 of the Reasonable and Prudent Alternative in the BiOp requires them to fund the development of HGMPs for all Columbia Basin hatchery programs by the 3-year check-in scheduled for late 2003. The underlying intent is to join the common interest of hatchery operators and the FCRPS Action Agencies in identifying hatchery reforms and accelerating their implementation to benefit listed fish, thereby contributing to better achievement of artificial production objectives for the Columbia Basin while contributing to offsite performance standards prescribed in the FCRPS BiOp. For this reason, the FCRPS Action Agencies will be prepared to fund implementation of certain hatchery reforms identified in approved HGMPs.

Hatchery Reform and Congress. The reform of some hatchery programs is warranted irrespective of any particular ESA consideration, for example to reflect improved hatchery practices. When they do not translate into benefits to ESA listed fish, such non-ESA reforms may have to be justified according to their relevance to achieving the Council's Fish and Wildlife Program objectives or other mitigation objectives, rather than their value as off-site mitigation under the FCRPS BiOp. In these cases, funding from sources other than FCRPS Action Agencies may be required. Hatchery reforms at Mitchell Act facilities, which are authorized and funded by Congress for mitigation purposes, may particularly depend on Congressional appropriations due to "in-lieu" constraints on funding of such Federal programs by the Action Agencies.

The APRE and HGMP processes. The HGMP process has three phases, described in greater detail below. The initial phase was undertaken in cooperation with the Northwest Power and Conservation Council (Council) Artificial Production Review and Evaluation (APRE) process, a largely concurrent process now underway in the Basin. Though both seek to implement hatchery reform, the APRE and HGMP processes differ in scope, approach, and specific outcomes. For example, the APRE includes non-anadromous fish, and utilizes the services of consultants engaged by the Council to analyze existing programs, recommend reforms, interact with an Artificial Production Advisory Committee representing Columbia Basin fishery managers, and prepare a report that will go to the Council and the region. The HGMP process addresses only anadromous salmon and steelhead programs, is designed to achieve both ESA coverage and identify FCRPS offsite mitigation opportunities, and relies on the active participation of state, tribal, federal and other entities operating or affected by artificial production programs to identify hatchery reforms.

To maximize efficiency and ensure the two processes are complementary, NOAA Fisheries and Council staff have coordinated the information and data-gathering phase to assure a consistent database for use in both the APRE and HGMP processes. To assist this overall effort, the Council retained a consultant, Mobrand and Associates, to help gather and organize the massive amount of information involved. The consultants designed a questionnaire to elicit comprehensive information from hatchery operators about their programs, developed an electronic database and associated software, conducted a series of multi-subbasin workshops with hatchery operators to obtain their data and information, and entered it into the database. It is intended that the database and software will be available for future deliberations on artificial production as well. The last step in the in-common data-gathering phase of the APRE/HGMP process will be largely finished upon completion of several subregional workshops, dubbed "exit interviews," currently planned to occur in April 2003. Those sessions, organized around groups of subbasins, are designed to verify that the database is accurate and complete.

The three phases of the HGMP process. As noted above, the joint APRE/HGMP data-gathering effort was designed to feed into NOAA Fisheries' HGMP process, which has three distinct phases. It starts with Phase I HGMPs, which can be generated from the database described above (in fact, in some cases draft HGMPs were the source of the data that were entered into the database). Phase I HGMPs largely reflect current programs, including applicable US v Oregon production agreements and other existing conservation, mitigation, and production programs. For some programs currently lacking ESA coverage, the Phase I HGMPs will be used in ESA consultations between the relevant hatchery program owner/operators and NOAA Fisheries. These consultations are intended to result in ESA coverage on at least an interim basis while the longer-term HGMPs are being developed in the collaborative Phase II and Phase III steps.

The Phase I HGMPs also will feed into the collaborative Phase II and III steps of the process. Phase II involves a series of workshops centered on specific HGMPs in an area (provinces or groups of sub-basins). These workshops will involve deliberations among the parties affected by particular artificial production programs, including but not necessarily limited to the states, tribes, and federal agencies, collectively referred to herein as the HGMP "collaborators." The deliberations will be overseen by a neutral "Process Manager" engaged and funded by the Bonneville Power Administration (BPA) to keep the process moving along according to schedule, and generally manage the process toward itscompletion. Phase II HGMPs will incorporate the collaborators' discussions for each program or facility, and include hatchery reforms that could benefit listed fish and/or better achieve non-ESA objectives. When tentative agreement is reached on a Phase II HGMP, it will be set aside ("parked") until all HGMPs relevant to the ESU(s) affected by the program are completed. For proposed actions where the collaborators are unable to reconcile differences between them, a number of possibilities exist for reconciling those differences; these are described in greater detail below.

When all Phase II HGMPs that impact a listed Evolutionarily Significant Unit (ESU) are completed, and any input received from other forums such as sub-basin planning, recovery planning, the APRE and/or US v Oregon included as appropriate, NOAA Fisheries will analyze impacts from an ESU perspective, i.e., taking into account the effects of all artificial production programs defined in Phase II HGMPs and considering the other factors that affect a listed ESU. Specific steps will be taken to link the HGMP process with other relevant processes, as illustrated in the attached flowchart, to ensure that Phase II HGMPs appropriately reflect agreed recommendations emerging from these various forums. Following this review by NOAA Fisheries, the HGMP collaborators will strive to reach agreement on modifications of the HGMPs to address any ESA concerns raised by NOAA Fisheries. Lacking agreement among the collaborators, the owner/operator of the facility in question will consult with NOAA Fisheries to address the issue. Not necessarily all Phase II HGMPs will require revision due to NOAA Fisheries' ESU-wide analysis; in these cases Phase II HGMPs will become Phase III HGMPs with little or no substantive revision. Completed and approved HGMPs will demarcate the ESA-related responsibilities of hatchery operators and those additional reforms, if any, that might benefit listed fish and therefore be eligible for FCRPS off-site mitigation funding from BPA through the Council's rolling provincial review process.

In both Phases II and III of the HGMP process, recommendations emerging from the APRE process will be expressly considered by the collaborators developing HGMPs. The HGMPs will note explicitly which APRE recommendations have been adopted and, for those that are not adopted, will indicate briefly why the recommendations were modified or not adopted. These steps will help ensure that the HGMP and APRE processes have the opportunity to incorporate the insights and hatchery reforms proposed in both efforts.

Linkage between HGMP process and Subbasin Planning. As noted above, the HGMP process is designed primarily to deal with existing hatchery programs and potential reforms to those programs. At the same time, the region is heavily engaged in a broad-scale subbasin planning initiative designed, among other purposes, to provide the building blocks of recovery plans for listed fish and better inform choices among alternative recovery actions. Subbasin planning may well involve consideration of alternative ideas on how to utilize artificial production to achieve subbasin objectives and local harvest goals. The HGMP process does not preclude any outcome of subbasin planning. Subbasin planning efforts should consider both within-basin and out-of-basin harvest opportunities and commitments, as the purposes of some hatchery programs may not be entirely reflected in a subbasin plan. Many hatchery programs were founded and continue to exist to provide benefits both within and outside the subbasin in which the program operates, often as mitigation for the effects of various development activities. Fishery benefits may extend to downriver and ocean harvest arenas and the harvest objectives for these activities may continue to be valid in many cases.

The anticipated time frames for subbasin planning and the HGMP process pose significant coordination challenges. Procedurally, it will be important to establish protocols to ensure appropriate communication linkages between the HGMP process and the applicable lead entities in each subbasin planning area. Coordination between subbasin planning and the HGMP process will likely occur in four important ways. First, subbasin planners at the watershed level will be afforded the opportunity to report periodically the status of their planning effort and any useful information to those developing individual HGMPs in the affected area. Second, HGMP participants will be afforded the opportunity to update subbasin planners at the watershed level on the progress and status of individual HGMPs. Third, the HGMP process will interact periodically with the state-level subbasin planning effort by briefing and exchanging information with the state coordinators and/or Governor's offices as appropriate. Fourth, during Phase III of the HGMP process, the HGMP coordinators will interact with those who are integrating the subbasin plans at the Province and Basin-wide level. These four steps should ensure that HGMPs and subbasin planning develop in a mutually reinforcing manner. Throughout the processes, subbasin planners will be encouraged to attend HGMP working sessions at appropriate times to familiarize themselves with artificial production issues and offer their perspectives.

More substantively, the existence of subbasin planning groups may provide an opportunity for affecting choices among alternative uses of artificial production identified in the HGMP process. For example, if a given subbasin is far enough along in its planning to have identified broad options for recovery, a linkage with the HGMP process may help both processes achieve their objectives. Particularly when Phase II HGMP discussions result in unreconciled differences among collaborators, Phase II options could be logically coupled with specific habitat options identified in the subbasin planning process to create "recovery scenarios" that could be presented to subbasin planners, the Technical Recovery Teams, and/or the HGMP process.

Or, in the circumstance where subbasin planning is not yet far enough along to help reconcile alternative artificial production uses, HGMP collaborators could choose to address the question on an interim basis pending further progress in the development of the pertinent subbasin plan(s). In all cases, as mentioned previously, it must be clear that the existence of an approved HGMP never precludes the possibility of new uses and/or approaches involving artificial production; existing HGMPs can always be modified or replaced, or new ones considered, to implement emerging subbasin plans.

Linkage between HGMP process and Technical Recovery Team (TRT). There are several ways the HGMP process can link with the TRT/recovery planning process. First, TRT products, particularly their population delineations and factors of decline analyses that will affect choices among various artificial production options, will inform the participants in the HGMP process. In addition, when disagreements emerge among collaborators regarding a specific HGMP, alternatives could be presented to TRTs for their technical advice on a particular issue. If such advice leads to agreement, the applicable HGMP could be completed and set aside (parked) until all HGMPs relevant to an ESU are completed. If not, TRTs could provide technical review of alternative hatchery production scenarios being considered by comanagers. Depending on the status of subbasin planning, alternative artificial production uses could be logically coupled with alternative habitat approaches, creating contrasting recovery scenarios for analysis and advice by the TRTs, consistent with the overall approach to recovery planning.

Linkage between the HGMP process and *US v Oregon*. As noted above, the Phase I HGMPs largely reflect current hatchery programs, including many production agreements developed in US v Oregon. In addition, it is quite possible that a number of artificial production issues will emerge that, despite the subbasin planning and TRT linkages described above, prove unresolvable in the HGMP forum. Depending on the parties in dispute, some of these disputed issues may lend themselves to resolution in the US v Oregon process. Whether or not a specific dispute exists, it will be critical to maintain ongoing dialogue between the HGMP and US v Oregon processes. This should not prove particularly difficult due to the substantial overlap in participants in these two processes and largely concurrent effort in US v Oregon to develop a new Columbia River Fish Management Plan.

COLUMBIA RIVER BASIN HGMP PROCESS
Combined Phase APRE/ HGMP
Draft 3/21/03

Northwest Power Planning Council

APRE PROCESS

HGMP PROCESS

Complete Program Data
Initial APRE Program reports on web for Manager review

Existing U.S. v OR production agreements

Sept. 2002

Second Provincial Workshop
Exit Interview / HGMP Kickoff

APRE Program Reports
on Web for Manager Review / preparation

Draft Phase I HGMP's
Current programs/ facilities delivered to Managers

Final APRE program reports

Phase I
Consult for Interim ESA coverage where lacking

Prepare Draft APRE Provincial Reports

Technical Recovery Team*
ID populations; viability analysis; Phase II scenario analysis, etc.

Co-Manager collaborative phase II/III:
reconcile existing HGMPs; develop/consider new HGMPs

Phase II:
- Individual Program Emphasis (facility and species)
- TRT advice if needed

Phase III
- ESU-wide emphasis, with cumulative considerations
- Unreconciled options may be bundled with SBP "Scenarios" for TRT advice

APRIL 2003

Co-managers comment on APRE provincial reports

Subbasin Planning (SBP)*
assessment;
inventory;
management plan

Final APRE Provincial Reports for Subbasin Planning and HGMP Phase II and III

US v Oregon*
- CRFMP harvest and production integration
- reconciliation of unresolved issues, disputes

Final APRE Report to Congress

NMFS Reviews HGMP under applicable section of ESA (sec 4d, 7, 10)

Sept. 2003

* note: chart is not intended to provide details on the scope or schedules of these other processes

Recovery Plan ← **Hydro Actions** + **Harvest Actions** + **Habitat Actions** + **Hatchery Actions** Art. Prod. Reform; Offsite mitigation $

Hatchery Program	Subbasin
Winter Steelhead (Big Creek) - Hatchery	Lower Columbia
Coho (Big Creek) - Hatchery	Lower Columbia
Coho (SAFE) - Hatchery	Lower Columbia
Fall Chinook (Tule - Big Creek) - Hatchery	Lower Columbia
Fall Chinook (Bonneville) - Hatchery	Lower Columbia
Coho (Bonneville) - Hatchery	Lower Columbia
Toutle Coho (Early)	Cowlitz
Toutle Summer Steelhead	Cowlitz
Late Winter Steelhead	Cowlitz
Early Winter Steelhead (Chambers)-Hatchery	Cowlitz
Summer Steelhead Skamania-Hatchery	Cowlitz
Searun Cutthroat	Cowlitz
Chum	Cowlitz
Cowlitz Fall Chinook	Cowlitz
Toutle Fall Chinook	Cowlitz
Spring Chinook	Cowlitz
Cowlitz Coho (Late)	Cowlitz
Spring Chinook	Kalama
Summer Steelhead (Local)	Kalama
Winter Steelhead (Chambers)-Hatchery	Kalama
Winter Steelhead (Local)	Kalama
Summer Steelhead (Skamania)-Hatchery	Kalama
Coho (Late)-Hatchery	Kalama
Coho (Early)-Hatchery	Kalama
Fall Chinook	Kalama
Late Coho	Lewis
Early Coho	Lewis
Spring Chinook-Hatchery	Lewis
Early Winter Steelhead (Chambers)-Hatchery	Lewis
Summer Steelhead (Skamania)-Hatchery	Lewis
Kokanee	Lewis
Rainbow Trout-Hatchery	Lewis
Tiger Muskie-Hatchery	Lewis
Summer Steelhead - Hatchery	Sandy
Winter Steelhead - Integrated	Sandy
Coho - Hatchery	Sandy
Spring Chinook - Integrated	Sandy
Skamania Winter Steelhead-E.F. Lewis	Washougal
Skamania Winter Steelhead-Salmon Cr. Netpens	Washougal
Chum- Duncan Creek	Washougal
Late Coho	Washougal
Fall Chinook	Washougal
Summer Steelhead	Washougal
Early Winter Steelhead-Hatchery	Washougal
Clackamas Summer Steelhead - Hatchery	Willamette
North Santiam Summer Steelhead - Hatchery	Willamette
Clackamas Early Coho - Hatchery	Willamette
White Sturgeon - Hatchery	Willamette
MF Willamette Summer Steelhead - Hatchery	Willamette
Molalla Spring Chinook - Integrated	Willamette
Caliapooia Spring Chinook - Integrated	Willamette

Hatchery Program	Subbasin
MF Willamette Spring Chinook - Integrated	Willamette
McKenzie Spring Chinook	Willamette
South Santiam Spring Chinook - Integrated	Willamette
Clackamas Spring Chinook - Integrated	Willamette
N. Santiam Spring Chinook - Integrated	Willamette
Clackamas Winter Steelhead - Integrated	Willamette
McKenzie Summer Steelhead - Hatchery	Willamette
South Santiam Summer Steelhead - Hatchery	Willamette
Clackamas Winter Steelhead - Hatchery	Willamette
Spring Chinook (Upper Cowlitz basin) - Integrated	Willamette
Spring Chinook (SAFE LCE) - Hatchery	Columbia Estuary
Winter Steelhead (Klaskanine) - Hatchery	Columbia Estuary
Fall Chinook (Youngs Bay) - Hatchery	Columbia Estuary
Early Coho	Elochoman
Fall Chinook	Elochoman
Late Coho	Elochoman
Summer Steelhead-Hatchery	Elochoman
Early Winter Steelhead-Hatchery	Elochoman
Chum	Grays
Early Winter Steelhead-Hatchery	Grays
Early Coho	Grays
Fall Chinook Tule-Hatchery	Columbia Gorge
Spring Chinook (Pilot)-Integrated	Hood
Summer Steelhead - Skamania	Hood
Spring Chinook RB	Hood
Summer Steelhead (Endemic)-Integrated	Hood
Winter Steelhead	Hood
Coho N (Klickitat Hatchery)- Hatchery	Klickitat
Spring Chinook	Klickitat
Fall Chinook-Hatchery (URB) Hatchery	Klickitat
Coho N (Washougal Hatchery)- Hatchery	Klickitat
Skamania Summer Steelhead-Hatchery	Klickitat
Coho-Hatchery	Little White Salmon
Spring Chinook-Hatchery	Little White Salmon
Summer Steelhead (Skamania)-Hatchery	Little White Salmon
Fall Chinook (URB) - Hatchery	Little White Salmon
Summer Steelhead (Skamania)-Hatchery	Big White Salmon
Winter Steelhead (Skamania)-Hatchery	Big White Salmon
Spring Chinook-Hatchery	Wind
Kokanee Lake Whatcon-Hatchery	Columbia Upper
German Brown Trout-Hatchery	Columbia Upper
Brook Trout Triploid-Hatchery	Columbia Upper
Spokane Rainbow-Hatchery	Columbia Upper
Lahontan Cutthroat	Columbia Upper
Rainbow Trout Triploid-Hatchery	Columbia Upper
Red Band-Hatchery	Columbia Upper
Tiger Muskie-Hatchery	Columbia Upper
Westslope Cutthroat Hatchery	Spokane
Kokanee-Hatchery	Spokane
Eastern Brook Trout-Hatchery	Spokane
Brown Trout-Hatchery	Spokane
Tiger Muskie-Hatchery	Spokane

Hatchery Program	Subbasin
Rainbow Trout-Hatchery	Spokane
Bull Trout	San Poil
White Fish-Hatchery	San Poil
Westslope Cutthroat-Hatchery	San Poil
Rainbow Trout-Hatchery	San Poil
Red Band-Hatchery	San Poil
Rainbow Trout-Goldendale-Hatchery	Lake Rufus
Rainbow Trout- Triploids-Hatchery	Lake Rufus
Channel Catfish-Hatchery	Coeur d'Alene
Rainbow Trout Triploid-Hatchery	Coeur d'Alene
Arctic Grayling-Hatchery	Coeur d'Alene
Tiger Muskie-Hatchery	Coeur d'Alene
Westslope Cutthroat-Hatchery	Coeur d'Alene
Chinook Landlocked-Hatchery	Coeur d'Alene
Lake Trout	Flathead
Tiger Muskie-Hatchery	Kootenai
Golden Trout-Hatchery	Kootenai
Channel Catfish-Hatchery	Kootenai
Burbot-Hatchery	Kootenai
Arctic Grayling-Hatchery	Kootenai
Rainbow Trout-Hatchery	Kootenai
ID Westslope Cutthroat-Hatchery	Kootenai
Westslope Cutthroat-Hatchery	Kootenai
Kokanee-Hatchery	Kootenai
Largemouth Bass-Hatchery	Pend Oreille
Kokanee-Hatchery	Pend Oreille
Westslope Cutthroat-Hatchery	Pend Oreille
Brown Trout-Hatchery	Pend Oreille
Rainbow Trout-Hatchery	Pend Oreille
Arctic Grayling-Hatchery	Pend Oreille
Golden Trout-Hatchery	Pend Oreille
Channel Catfish-Hatchery	Pend Oreille
Tiger Muskie-Hatchery	Pend Oreille
Rainbow Trout Triploid-Hatchery	Pend Oreille
Brown	Crab Creek
Eastern Brook Triploid	Crab Creek
Tiger Trout	Crab Creek
Rainbow-Banks Lake	Crab Creek
Rainbow	Crab Creek
Fall Chinook- Ringold	Columbia Lower Middle
Summer Steelhead (Skamania)-Klickitat Hatchery	Columbia Lower Middle
Summer Steelhead- Ringold	Columbia Lower Middle
URB Fall Chinook (Priest Rapids) - Integrated	Columbia Lower Middle
Yakima Fall Chinook	Yakima
Lake Rainbow Trout-Hatchery	Yakima
Kokanee-Hatchery	Yakima
Lake Cutthroat-Hatchery	Yakima
Lakes Brown Trout-Hatchery	Yakima
Upper Yakima Coho	Yakima
Upper Yakima Spring Chinook	Yakima
Marion Drain Fall Chinook	Yakima
Naches Coho	Yakima

Hatchery Program	Subbasin
Round Butte Spring Chinook - Hatchery	Deschutes
Red Band Rainbow Trout (Oaks Springs)-Hatchery	Deschutes
Warm Springs Spring Chinook- Integrated	Deschutes
Kokanee- Hatchery	Deschutes
Steelhead-Integrated	Deschutes
Cranebows- Integrated	Deschutes
Rainbow Trout Stock 53	Deschutes
Fall Chinook-Integrated	Snake Lower
Summer Steelhead (LF)-Hatchery	Snake Lower
Spring Chinook- Integrated	Tucannon
Summer Steelhead- Integrated	Tucannon
Spring Chinook-Captive Brood	Tucannon
Summer Steelhead (LF)-Hatchery	Tucannon
Summer Steelhead	Umatilla
Fall Chinook	Umatilla
Spring Chinook	Umatilla
Coho	Umatilla
Touchet Summer Steelhead-Endemic	Walla Walla
Summer Steelhead (LF)-Hatchery	Walla Walla
Spring Chinook (Clearwater Hatchery)	Clearwater
Spring Chinook (Kooskia)	Clearwater
Spring Chinook (Dworshak)-Hatchery	Clearwater
Coho	Clearwater
Spring Chinook (Nez Perce)	Clearwater
Summer Steelhead (Dworshak/Clearwater)	Clearwater
Fall Chinook (Big Canyon)-Integrated	Clearwater
Clearwater Hatchery B- Run Steelhead	Clearwater
Fall Chinook (NP Cherry Lane)- Integrated	Clearwater
Spring Chinook (Rapid River) - Hatchery	Salmon
Summer Chinook (Upper SF Salmon/McCall)	Salmon
Summer Chinook (Johnson Creek)	Salmon
Redfish Lake Sockeye	Salmon
Steelhead A-Run (Sawtooth)- Hatchery	Salmon
Lemhi River Spring_Summer Chinook	Salmon
Spring/Summer Chinook (East Fork Salmon River)- Integra	Salmon
Steelhead B (Dworshak)-Hatchery	Salmon
Spring Chinook (Upper Salmon/Sawtooth)	Salmon
Summer Chinook (McCall)-Hatchery	Salmon
Summer Chinook (Pahsimeroi)	Salmon
Steelhead A-Run (Pahsimeroi)- Hatchery	Salmon
Spring/Summer Chinook (W. Fork Yankee Fork_ Salmon R	Salmon
Spring Chinook (Captive Brood)- Catherine Creek	Grande Ronde
Spring Chinook (Captive Brood)- Grande Ronde	Grande Ronde
Spring Chinook (Captive Brood)- Lostine	Grande Ronde
Spring Chinook (Lostine)-Integrated	Grande Ronde
Summer Steelhead- Wallowa	Grande Ronde
Spring Chinook (Catherine Creek)-Integrated	Grande Ronde
Spring Chinook (Upper Grande Ronde)-Integrated	Grande Ronde
Summer Steelhead (Steelhead-Rainbow CrossResearch)	Grande Ronde
Summer Steelhead (Cottonwood Creek)-Hatchery	Grande Ronde
Summer Steelhead-Integrated	Imnaha
Spring/Summer Chinook-Integrated	Imnaha

Hatchery Program	Subbasin
LFH Fall Chinook-IPC Hells Canyon	Snake Hells Canyon
LFH Fall Chinook-Pittsburg Landing	Snake Hells Canyon
Summer Steelhead - Hatchery	Snake Hells Canyon
Spring Chinook - Hatchery	Snake Hells Canyon
Rainbow Trout	Boise
Kokanee	Boise
Rainbow	Bruneau
LFH Fall Chinook-Captain John	Snake Lower Middle
Rainbow Idaho Power	Snake Upper Middle
Sturgeon	Snake Upper Middle
Rainbow Trout	Snake Upper Middle
Walleye	Snake Upper Middle
Rainbow Trout (Stock 53 &7 2)	Malheur
Brook Trout	Malheur
Rainbow Stock 53	Owyhee
Rainbow Trout	Payette
Kokanee	Payette
Rainbow Trout	Weiser
Tiger Muskie	Snake Upper
Lahontan Cutthroat	Snake Upper
Splake	Snake Upper
Rainbow /Yellow Cutthroat Hybrids	Snake Upper
Brook Trout	Snake Upper
Yellow Cutthroat	Snake Upper
Summer Chinook	Upper Middle Columbia
Spring Chinook-Hatchery	Entiat
Summer Chinook	Methow
Spring Chinook- Methow Hatchery	Methow
Coho	Methow
Summer Steelhead	Methow
Spring Chinook	Methow
Spring Chinook Supplementation	Methow
Coho- Wenatchee	Methow
Summer Steelhead (Wells/Methow Basin)	Methow
Summer Steelhead (Wells/L.Similkameen)	Methow
Summer Steelhead (Wells/Okanogan Basin)	Methow
Summer Chinook (Methow-Carlton)	Wenatchee
Summer Chinook (Okanogan-Similkameen)	Wenatchee
Summer Chinook (Turtle Rock)	Wenatchee
Summer Steelhead	Wenatchee
Summer Chinook (Wells Hatchery)	Wenatchee
Coho	Wenatchee
Spring Chinook-Hatchery	Wenatchee
Spring Chinook (Chiwawa R.)	Wenatchee
Spring Chinook (White River)	Wenatchee
Sockeye	Wenatchee
Summer Chinook	Wenatchee

Artificial Production Review and Evaluation

A. Review of a Hatchery Program[1]

A purpose of the Artificial Production Evaluation and Review (APRE) is to evaluate individual hatchery programs in regard to their relationship to stated goals for conservation and harvest, and their potential effects on other stocks and on the environment. The review covers existing hatchery programs, as they are currently operated. When all programs are evaluated, a picture of the overall benefits and risks associated with the current Columbia River hatcheries will emerge.

The review is not a statistical survey of hatchery contribution rates or culture methods, nor is it a research project to provide new knowledge about the benefits and risks of hatcheries. Instead, the review is intended to gather existing knowledge and explicit assumptions, much of it qualitative, regarding the purpose, benefits and risks of the current hatchery programs in the Columbia River Basin.

The review is intended to reflect the current state of knowledge –scientific uncertainties clearly exist and they will be identified as potential risks.

Premise

A *hatchery program* is defined as a stock or population of fish that spends some portion of its life cycle in a hatchery environment[2]. A *hatchery program* is identified by species, stock and release location.

While hatchery programs may in reality be genetically connected to natural populations to varying degrees, we will assume only two types of programs: *integrated*[3] and *segregated*[4]. Integrated programs are designed to minimize the divergence of the hatchery population from its natural counterpart. Segregated programs are designed to minimize the genetic interaction of the hatchery population with natural populations.

The hatchery programs will be evaluated in terms of their effects on the current status of fish populations in the Columbia Basin and on short-term (10-15 years) and long-term (30-50 years) goals for their harvest and conservation. Population in this sense refers to both hatchery and naturally produced fish. We will obtain goals for all potentially

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[1] The evaluation approach draws extensively from the work products of the Hatchery Scientific Review Group (see http://www.lltk.org/hatcheryreform.html#review).

[2] A hatchery environment is broadly defined to include most artificial means typically used in basin for the purpose of enhancing survival and/or production.

[3] An integrated program is one where the hatchery population is maintained as a component of a larger population. The broodstock is not necessarily just hatchery returns, you continue to maintain wild to hatchery gene flow. The goals and objectives can be quite different from a segregated program. They often include maintaining genetic continuity and preventing genetic divergence with the wild population. Domestication is a risk. The hatchery is seen as an artificial extension of the natural habitat.

[4] In a segregated (sometimes referred to as "isolated") program, broodstock is typically from the hatchery population only. The population is genetically distinct from the wild population. The goals include optimizing productivity of the stock. There is less concern about domestication, which may even be desirable. A segregated population might be viewed as a "farmed" population, often the goal is solely harvest.

affected stocks and environments. These goals will become a key premise for the evaluation.

Conservation goals for each potentially affected salmonid stock will be described in terms of *biological significance*, *genetic viability*, and *habitat status* (for the stock).

Biological significance is a measure of the importance of the population to the long term persistence of its ESU. For the purpose of this review the biological significance of the population will be rated as high, medium, or low, as function of its stock origin, the uniqueness of its biological attributes (life history, physiology, morphology, behavior, etc.), and metapopulation structure.

Genetic viability is a measure of the ability of the population to survive over time in the natural environment. It will be rated as high, medium, or low as a function of effective population size, productivity (recruits per spawner), and composition of spawning population (natural vs hatchery).

Habitat status describes the ability of the environment to support the population over time. Habitat status will be rated as high, medium, or low as a function of quantity and quality of habitat available to the population.

Harvest is rated as high if the population provides harvest opportunity every year, medium is most years, low is occasionally, and none if no harvest can be supported.

The potential benefits and risks associated with a hatchery program depend upon the *regional context* (i.e. the current status and goals for potentially affected stocks), and on the characteristics of the hatchery program itself. Characteristics of the hatchery programs will be described in programmatic terms (broodstock source, number, life stage, and locations of releases) and operational terms (culture practices).

The *regional context* informs the review process about risk tolerance and provides a scale for evaluating success. The programmatic and operational description of the hatchery program coupled with the framework outlined in section B ("Conditions for success of a hatchery program") describe the potential benefits and risks of the hatchery program being evaluated.

We have drafted two forms, which we propose to use to capture a) the co-managers goals for the fish stocks and habitat affected by the hatchery programs (Form 1), and b) the programmatic and operational descriptions of the hatchery programs (Form 2). The forms will be filled out by biologists based on data they assemble, and on interviews they conduct with hatchery operators (see section C. below).

In the following sections we outline the framework for the review (Section B.), identify the data needed to apply the framework (Section C.), and describe the steps in the evaluation procedure (Section D.).

B. Conditions for Success of a Hatchery Program

The APRE framework is based on the premise that in order for a hatchery program to be successful, it must be consistent with goals for all salmonid stock and it must make a contribution to harvest and/or conservation of the stock targeted by the program. More specifically to be successful a hatchery program must meet the following four major conditions:

1. It must produce a healthy and viable hatchery population.
2. Its potential effects on wild and native populations and the environment must be understood.
3. It must make a sustainable contribution of adult returns to conservation and/or harvest.
4. It must collect, record, evaluate and disseminate information pertaining to conditions 1 – 3 so that decision makers may be informed about the benefits and risks of the program relative to other means for achieving similar conservation and harvest goals

Based on the four conditions above we have created a hierarchy of questions, reflecting progressively more specific conditions for success. The questions in the third level of the hierarchy (i.e. #.#.#) below are generally stated such that a YES implies that a specific condition for success has been met and a NO implies a potential risk of failure. (Note that all questions are not applicable to all types of programs, in other words a NO does not always imply risk.) Thus the answers to these questions coupled with the goals for the affected stocks provide a benefit-risk profile of the hatchery program.

The questions in APRE Form 2 are based on the third level (#.#.#) questions below.

1. What is the health and viability of the hatchery population?

1.1. What are the genetic conditions (composition, diversity, population structure) of the hatchery population and any naturally spawning population connected to it?

1.1.1. Is the hatchery stock native to the watersheds in which it is released?

1.1.2. Have eggs or adults been introduced from outside the watershed since inception of the hatchery program?

1.1.3. Are adults randomly selected among all returning adults?

1.1.4. Were sufficient *numbers of donors* collected *from the natural stock* to minimize founder effects when the program was initiated?

1.1.5. Are sufficient broodstock collected to maintain an *effective population size* of 1000 fish per generation? *(How many males and females do you typically spawn?)*

1.1.6. If goal is to minimize genetic divergence, are at least 10*% of the broodstock derived from wild fish* each year? (*How many wild fish do you incorporate into your broodstock each year?)*

1.1.7. Is backfilling of egg shortages always avoided?

1.1.8. Is *pre-spawning mortality less than 10%*?

1.1.9. Is the composition of hatchery and wild fish in the broodstock known and controlled?

1.1.10. Is the necessary security of the stocks maintained?
1.1.11. Are males and females available for spawning on a given day randomly mated?
1.1.12. Do fish selected for broodstock have an equal opportunity to make a genetic contribution to the progeny gene pool? *(How are eggs fertilized? Pairwise? Overlapping pairwise?, modified matrix? Etc.)*
1.1.13. Does the hatchery program include any natural spawning?
1.1.14. Are full sib families incubated separately? (*Are eggs from a single female incubated separately?)*
1.1.15. Are water sources used that match the hatching/emergence timing of naturally produced populations?
1.1.16. Are fish reared under conditions that maximize the probability that all segments of the population contribute equally to the release population? *(Is size grading practiced? If so, are slower growing fish culled?)*
1.1.17. Are all fish reared under environmental conditions that tend to maximize survival of all segments of the population?
1.1.18. Are excess juveniles culled randomly when necessary?
1.1.19. Are the fish produced similar to natural fish in size, growth rate, morphology, behavior, physiological status, health, etc?
1.1.20. Are fish reared in multiple facilities or with redundant systems to reduce the risk of catastrophic loss?
1.1.21. Are fish reared for the shortest period possible?
1.1.22. Are families reared individually to maintain pedigrees?
1.1.23. If required, are larger families culled to minimize family size variation?
1.1.24. Is volitional release practiced during the natural out-migration timing?

1.2. What are the morphological, behavioral, and physiological characteristics of the hatchery population?

1.2.1. Does the program use water sources that result in hatching/emergence timing similar to that of the naturally produced population?
1.2.2. Are fish spawned in good health and "ripe"?
1.2.3. Is the broodstock maintained on natural water temperature profiles to provide optimum maturation and gamete development?
1.2.4. Does the program use a diet and growth regime that mimics natural growth patterns?
1.2.5. Are the fish produced qualitatively similar to natural fish in size, morphology, behavior, growth rate, physiological status, health, and other attributes?
1.2.6. Are natural rearing conditions simulated for rearing density, temperature, photoperiod, hydraulic characteristics, feeding conditions, and predator avoidance training?
1.2.7. Are fish released within the size range of naturally produced fish from which the hatchery population is derived?
1.2.8. Are volitional releases during natural out-migration timing practiced?

1.3. What is the “health status” of the hatchery population?

1.3.1. Does the broodstock chosen have a history of no pathogens?

1.3.2. If broodstock choice is from another drainage, are eggs preferentially transferred? Are fish or eggs held in quarantine as described in the Salmonid Disease Control Policy of the Fisheries Co-Managers of Washington State (disease control policy)?
1.3.3. Are disinfection procedures, during broodstock, collection implemented that prevent pathogen transmission between stocks of fish on site?
1.3.4. Is pathogen sampling at spawning sufficient to provide quantitative and qualitative information for needed pathogen control measures that may be necessary for resultant transfers or rearing of progeny?
1.3.5. Are eggs water-hardened in iodophor solution as described in the disease control policy?
1.3.6. Are disinfection procedures, during spawning, implemented that prevent pathogen transmission between stocks of fish on site?
1.3.7. Does incubation occur on pathogen-free and/or fish-free water supply?
1.3.8. Are species-specific incubation recommendations followed for water quality, flows, temperature, substrate, and density parameters to prevent syndromes such as “gas bubble disease”, “cold water disease”, “blue sac”, etc.)?
1.3.9. Are incubating eggs treated when recommended by attending fish pathologist?
1.3.10. Following eye-up stage, are eggs inventoried, and dead or undeveloped eggs removed and disinfected, as described in the disease control policy?
1.3.11. Are disinfection procedures, during incubation, implemented that prevent pathogen transmission between stocks of fish on site?
1.3.12. Does rearing occur on pathogen-free and/or fish free water supply?
1.3.13. Are species-specific recommendations followed for water quality, flows, temperature, or density parameters to reduce adverse stress and related pathogens and/or disease syndromes?
1.3.14. Are fish health examinations performed at a minimum of once per month and more frequently when required?
1.3.15. Whenever possible, are vaccines used to minimize the use of antimicrobial compounds?
1.3.16. Are fish treated with appropriate chemicals or drugs as recommended by fish pathologist?
1.3.17. Are disinfection procedures during rearing implemented that prevent pathogen transmission between stocks of fish on site?
1.3.18. Are predators excluded from ponds to prevent the spread of pathogens between containers?
1.3.19. In the event of an epizootic, are: Treatment recommendations of attending pathologist followed? Are affected containers isolated? Is effluent sanitized if possible?

1.4. Under what environmental conditions is the hatchery population cultured and what are the conditions of the receiving environment?

1.4.1. Are species-specific holding recommendations followed for water quality, flows, temperature, and density?
1.4.2. Is the broodstock collected and held in a manner that minimizes prespawning mortality?

1.4.3. Are eggs monitored when needed to determine fertilization efficiency and embryonic development?
1.4.4. Are fry removed from incubation units when 80-90% of observed fry have yolk-sac material that is 80-90% utilized and contained within body cavity ("button-up")?
1.4.5. Are appropriate water temperature profiles maintained to provide optimum embryo development?
1.4.6. Are incubator loading and densities maintained at levels that ensure optimum survival of eggs and fry?
1.4.7. Is substrate used to promote suitable fry distribution, optimum size, and appropriate emergence timing?
1.4.8. Are settleable solids, unused feed and feces periodically removed to ensure proper cleanliness of rearing container?
1.4.9. Does the operator follow proper feeding rates, conduct periodic feed quality analysis, and store feed under proper conditions to prevent nutritional disorders?
1.4.10. Are appropriate physical and chemical characteristics of water inflow and effluent (suspended solids, temperature, dissolved gases, pH, mineral content, and potential toxic metals) maintained to promote growth and survival?
1.4.11. Are accurate fish inventory data maintained (e.g. Hat-Pro) with a minimum of handling stress?
1.4.12. Are appropriate flow and density indexes maintained for the species and life stage being reared?
1.4.13. Is the correct amount and type of food provided to achieve the desired growth rate, body composition, and condition factors for the species and life stage being reared?
1.4.14. Are fish released in same drainage as rearing facility?
1.4.15. Are fish released at times of the year and sizes to allow adoption of multiple life history strategies?

2. What effect does the hatchery program have on wild and native populations and the environment?

2.1. How do hatchery structures affect wild and native populations and the environment?

2.1.1. Has a riparian management plan been implemented that incorporates vegetation management, herbicide and pesticide use, and surface water management provisions?
2.1.2. Does the facility operate within the limitations established in National Pollution Discharge Elimination System permit?
2.1.3. Has an on or off-site habitat mitigation plan been implemented?
2.1.4. Is unimpeded passage provided for wild fish through hatchery structures and by-pass reaches?
2.1.5. Does the hatchery operate to allow all migrating species of all ages to pass through hatchery related structures to maximize use of natural habitat?
2.1.6. Are adults distributed upstream of hatchery to meet habitat capacity?

2.2. What are the ecological effects of the hatchery program?

2.2.1. Does the broodstock chosen minimize negative ecological interactions?
2.2.2. Does the number of broodstock collected maintain program size within carrying capacity of the natural environment?
2.2.3. Are pre-spawning mortalities disposed of in a manner that prevents pathogen transmission to the receiving watershed?
2.2.4. Are adult fish or carcasses provided for upstream planting?
2.2.5. Are carcasses disposed of in a manner that prevents pathogen transmission to the receiving watershed?
2.2.6. Is spawning waste collected and disinfected prior to discharge to receiving water?
2.2.7. Does the number of eggs incubated maintain program size within the carrying capacity of the natural environment?
2.2.8. Are eggs (dead or culled) discarded in a manner that prevents pathogen transmission to the receiving watershed?
2.2.9. Does the number of fish reared maintain program size within carrying capacity of the natural environment?
2.2.10. Are mortalities removed daily and disposed of in a manner that prevents pathogen transmission to the receiving watershed?
2.2.11. Are all fish examined for presence of "reportable pathogens" as defined in the disease control policy at the assumed pathogen prevalence Level (APPL) of 5% no less than 3 weeks prior to release?
2.2.12. Are attending fish pathologist recommendations followed for treatments prior to release?
2.2.13. Are transfers out of drainage inspected as above and accompanied by appropriate notifications to responsible/regulatory parties as described in the disease control policy?
2.2.14. Are fish released in areas with adequate imprinting to facility or desired stream reach?
2.2.15. Are fish released in numbers that do not exceed the carrying capacity of the natural environment?
2.2.16. Are fish released into properly functioning freshwater, estuarine and marine habitat?
2.2.17. Are fish released in areas or at life history stages where they are unlikely to encounter or prey upon natural fish of the same or other species?
2.2.18. Are fish released in a manner so they are unlikely to encounter or prey upon natural fish of the same or other species?
2.2.19. Are fish released in stream reaches within the historic range of that species?
2.2.20. Are fish released in a manner that simulates natural migratory patterns?
2.2.21. Are fish released at locations where they are unlikely to encounter natural fish that are negatively affected by hatchery fish?
2.2.22. Are hatchery fish effectively utilizing available habitat following release?

2.3. What are the genetic interactions resulting from the hatchery program?

2.3.1. If the wild population has 150 fish or more, is collection of *wild broodstock* limited to 30% *of the population*?

2.3.2. Is the proportion of naturally spawning fish that are of hatchery origin known? If so, is it controlled?
2.3.3. Do you have guideline(s) for acceptable contribution of hatchery origin fish to natural spawning of the potentially affected naturally spawning population(s)? If so, are those guidelines met for all affected naturally spawning populations?
2.3.4. Are fish reared under conditions that maximize homing fidelity?
2.3.5. Is the duration of the program clearly defined?
2.3.6. Are fish released at life stages and locations that maximize homing fidelity?
2.3.7. For a given release date and location, are fish similar to the natural population in size, morphology, behavior, physiological status, health?
2.3.8. Are marking/tagging techniques used to distinguish among segments of the hatchery population and between the hatchery and natural populations?
2.3.9. Are fish identified with non-lethal detectable identification marks or tags?
2.3.10. Is the straying of hatchery fish into the wild controlled?
2.3.11. Is the attraction of wild fish into the hatchery controlled?
2.3.12. Are hatchery fish identified so the status of the natural population is not masked?

3. How and to what extent does the hatchery program contribute to harvest and conservation goals?

3.1. How and to what extent does the program contribute to conservation goals?

3.1.1. Does the proportion of the spawners brought into the hatchery follow a "spread-the-risk" strategy that maximizes the probability of survival for the entire population (hatchery and natural components), considering the adult/adult survival rates of both components of the population?
3.1.2. Is the proportion of naturally spawning fish that are of hatchery origin determined to maximize the reproductive fitness of the population component spawning in the wild?

3.2. How and to what extent does the program contribute to harvest goals?

3.2.1. Are facility and species-specific recommendations for water quality, temperature, loading, and density followed to maximize recruitment to fisheries?
3.2.2. Are fish identified with non-lethal detectable identification marks or tags?
3.2.3. Are fish released at a time, size, location, and in a manner that maximizes recruitment to fisheries?
3.2.4. Does the broodstock chosen or developed have the desired life history traits to meet harvest goals?

4. Is there accountability for the performance of the hatchery program?

4.1. Are program goals and objectives clearly stated?

4.2. Are performance measures defined?

4.3. Are data and information needed to measure performance collected, evaluated, and disseminated?

C. Data and Information needed to answer program operational questions

From the questions above a list of data and information needed to answer the question was derived. This list was then organized by operational stage (broodstock collection, rearing, etc.) and assigned priorities on the basis of the importance of the questions to which they apply.
It is highly unlikely that any hatchery program collects and records all data identified below. All items are observable however and where data pertaining to an important question is not collected, recorded and evaluated, this in itself constitutes a risk.

Where available the data items listed below will be retrieved and used as supporting documentation for answers to the evaluation questions (in Section B above and the Form 2 document).

Broodstock Choice:

For all Programs:

1. Broodstock origin (GDU,ESU,SASSI) for introductions; provide rationale (similarity to native stock) – annual record
2. Composition (NoR vs HoR) – annual record
3. Population characteristics (runtiming, sex/age, fecundity, egg size, length) - annual record
4. Tag recoveries in fisheries and escapement (to reconstruct recruitment and estimate productivity) – annual record
5. Disease history for each broodstock - annual record

In addition for integrated programs:

1. Population characteristics of natural spawners (as above plus morphology-body shape, coloration) - every generation
2. Gene (allele) frequencies in hatchery and natural stocks - 3 BY/decade (1 BY/generation, each cohort every other generation)

Broodstock Collection

For all Programs:

1. Number, composition (HoR, NoR), life stage (eggs, juveniles, or adults), and method of broodstock collection (Rationale for number and method of collection)- annual record
2. Number of fish entering hatchery and number passed upstream of hatchery - weekly during run
3. Disposition of all broodstock transferred out of hatchery - annual record
4. Incidents of broodstock losses and their causes - each event
5. Water temperature and flow in holding ponds - Daily
6. Holding pond volume, temperature (daily), dissolved oxygen level (weekly) and flow (weekly)
7. Natural spawners (HoR and NoR) in watershed - annual record
8. Incidence and prevalence of pathogen in the broodstock - annual record

9. Methods used to quarantine and/or disinfect ponds, equipment and personnel - annual record
10. Type and duration of disease treatment of adults - annual record

In addition for integrated programs:
1. Indicators of biological significance and viability of natural population - annual record
2. Quantity and quality of habitat (factors affecting whether to alter or terminate program) - annual record
3. Water temperature in stream – continuously

Spawning

For all Programs:
1. Number of NoR's and HoR's spawned by sex, fecundity, length, date and age - annual record
2. Spawner selection protocol (e.g random) wrt size, runtiming, HoR/NoR - annually
3. Number of NoR's and HoR's NOT spawned by sex, fecundity, length, date and age - annual record
(Q: Was a representative subsample of the population used for spawning?)
3. Mating scheme (e.g. 1:1, factorial, pooled gametes) - annual record
4. Number of carcasses distributed to watershed - annual record
5. Method of carcass disposition - annual record
6. Incidence and prevalence of pathogens - annual record
7. Type and duration of disease treatment of eggs - annual record
8. Disinfection methods for ponds, equipment and personnel - annual record

In addition for captive brood programs:
1. Genotype of selected mated pairs - annual record

In addition for integrated programs:
1. Genotype of selected mated pairs (where needed to separate stock components) - annual record

Incubation:

For all Programs:
1. Incubation water source, flow, temperatures, and water quality by lots (to estimate developmental rates) – daily record
2. Spawning dates, hatching dates, ponding dates by lots (to estimate developmental rates) - annual record
3. Counts of fertilized eggs, eyed eggs, dead eggs, and ponded fry (to estimate survival by lots) - annual record
4. Incubator type, substrate used, number of eggs per incubator - by lot
5. Size of fry and % yolk absorption at ponding - by lot
6. Method of disposal of eggs - by lot
7. Presence of pathogens in water - when water source changes

8. Egg treatments (by event); disinfection procedures for incubating eggs, incubators, equipment, effluent water, and personnel - by lot

In addition for integrated and conservation programs determine and/or record:
1. How families (or family groups) of eggs are incubated - annual record
2. Hatching dates, developmental rates for natural population - annual record

Rearing

For all Programs:
1. Count of fish at ponding or subsequent pooling - by lot/family group at each event
2. Culling numbers and methods - each event
3. Water sources, flows, volumes - as changes occur
4. Temperatures, dissolved oxygen levels - daily record
5. Pond types, substrate, structure, cover, pond cleaning frequency - as changes occur
6. Incidents of security or other kinds of failures affecting rearing survival - by event
7. Length and weight distribution (e.g. from random samples of 100 fish) - weekly/monthly (varies by species and life stage)
8. Mortalities – daily record
9. Status of smoltification (silvering, migratory behavior) - weekly during smoltification
10. Rearing methodology, including: densities, duration, behavioral conditioning - annual record y by lot
11. Kinds and quantities of herbicides and pesticides used in riparian zone- each event
12. Kinds, quantities, and procedures of chemicals and drugs used for fish treatments and for disinfecting ponds, equipment and personnel - each event
13. Water quality upstream and downstream: temperature, dissolved oxygen, pH, ammonia, nitrite, phosphorus, hardness, alkalinity, total suspended solids, settleable solids, and water flow through facility - as needed and consistent with NPDES
14. Feeding regimes: diet and ration, schedule (by lot), results of feed quality analyses - annual record
15. Types and concentrations of contaminants in water source(s) (e.g. of dioxins, pcbs, dieldrin, mercury, cadmium, lead)
16. Method of disposal of culls and mortalities - by event for each lot
17. Presence of microbial pathogens and parasites in water supply - as changes occur
18. Fish health examinations – monthly record
19. Incidence of observed predation on hatchery fish - by event

In addition for captive brood programs:
1. Length, weight and maturity of individuals - annual record
2. Day length – daily record
3. Spermatocrit, sperm motility, egg quality, fecundity, egg size .
4. Individual pedigrees

In addition for integrated programs:
1 Length and weight distribution for naturally produced fish (e.g. from random samples of 100 fish) - weekly/monthly (varies by species and life stage)
2. Status of smoltification for naturally produced fish (silvering, migratory behavior) - weekly during smoltification

3. ATPase on hatchery fish - every two weeks until pattern is established.
4. Cryptic coloration - at release

Release

For all programs:
1. Release method, locations, life stage, length and weight (for individuals in random 100 fish sample), and result of required pre-release fish health tests, smoltification (specify what is measured) - by event
2. Numbers and types of marks and tags used (to distinguish among segments of the hatchery populations and between hatchery and natural populations) - by lot
3. Approximate numbers of precocious males - by lot
4. Health status prior to release or transfer, and disposition of diseased fish -by lot
5. Disease treatments prior to release (type, date and duration) - by lot
6. Distribution of naturally-produced and hatchery juvenile fish in the receiving habitat - periodically
7. Quantity and quality of the receiving marine and freshwater habitat - annual record.
8. Distribution of other potentially affected species
9. Behavioral characteristics of released fish and their interaction with naturally produced fish through feeding behavior, aggressive behavior, group size, territory size, and habitat use

For integrated programs:
1. Natural outmigration timing (date and duration) - annual record
2. For naturally produced fish, length, weight (for 100 fish) - annual record
3. For naturally produced fish, timing of smoltification (silvering, migratory behavior) - annual record
4. For naturally produced fish, nutritional condition (proximate composition, liver glycogen) - annual record

Adult Migration:

For all programs:
1. Potential barriers to upstream migration of adults and movement of adults into and past the hatchery - annual record
2. The number of HoR's from any hatchery program found in spawning areas, and the number of NoR's attacted into the hatchery - annual record
3. Straying rates of individual hatchery populations - periodically
4. Reproductive success of HoR's from a particular hatchery program in nature - periodically
5. Abundance and distribution of hatchery and natural origin spawners - annual record

D. General Procedure for the Artificial Production Review and Evaluation

The main purpose of the Artificial Production Review and Evaluation (APRE) is to evaluate each Columbia River hatchery program against the goals for each salmonid stock potentially affected by the hatchery program. There are approximately 300 salmon and trout programs in the Columbia basin that will be included in this evaluation and about twice as many stocks (hatchery and natural) that are potentially affected.

Goals for salmonid stocks are expressed in terms of stock status (the genetic importance and viability of the stock), habitat conditions, and harvest opportunity. A key premise for the review is a statement of the current status and the short- and long-term goals for these three attributes against which a hatchery program's objectives, facilities and operations can be evaluated.

The Columbia basin is partitioned into a set of provinces. The review will be conducted by province. All stocks within the same province as the hatchery program are potentially affected by the hatchery program.

The general steps of the APRE are as follows:

1. Identify the current status and short- and long-term goals for all salmonid stocks in the province. We will invite the fisheries co-managers (states and tribes) to a workshop, where the purpose will be to identify their goals for all stocks. Where they are unable to come to agreement we will select a set of goals as the premise for the review and record the co-managers comments on those goals.
2. Describe each hatchery program. We will answer a suite of questions in two steps: first we (the NPPC contractors) will use data and information available electronically and in print to answer some of the questions, secondly we will answer the remaining questions by interviewing the individual(s) most familiar with each hatchery program. We will assemble all supporting data and reports as part of the documentation for the answers to the questions.
3. Describe potential benefits and risks of each hatchery program. Based on the information assembled in steps 1 and 2, and on the framework outlined in section B above we will identify and describe potential benefits and risks (including those resulting from scientific uncertainty) for each hatchery program.
4. Results of the evaluation will be presented to the co-managers at province level workshops. The co-managers will then be given an opportunity to include their comments as part of the report to Congress.
5. Following the appropriate review, the report will be finalized and submitted to Congress.

Artificial Production Review and Evaluation
Rough outline of APRE report:

Introduction

- **Purpose**
- **Approach**
- **Premise for the review (including e.g. basin-wide assumptions about mainstem, estuary and marine survival)**
- **Content/organization of this report**

Chapter 1. The Columbia Gorge

1. **Description of Province(s), fish stocks, hatchery programs and facilities (maps tables short narratives)**

2. **Province wide findings, conclusions and recommendations**

3. **Review of individual hatchery programs**

3.1. Bonneville fall chinook hatchery program

3.1.1. Status of the stock, its habitat and contribution to harvest
3.1.1.1. current status
3.1.1.2. short- and long- term goals
3.1.2. Program purpose and description
3.1.2.1.Program purpose and type (e.g. integrated conservation, or segregated harvest, other)
3.1.2.2.Program description (broodstock origin, rearing and release locations, numbers and life stages released, etc.)
3.1.2.3.Key operational features of the program (culture practices, facilities, fish health, etc)
3.1.3. Benefits and risks (relative to goals for stocks, habitat and harvest) associated with the program
3.1.3.1. consistency with short- and long- term goals for stock status, habitat and harvest
3.1.3.2. likelihood of meeting goals
3.1.3.3. consistency with goals for other stocks and the environment
3.1.3.4. monitoring programs (are risks due to uncertainty addressed, benefits evaluated, etc.)
3.1.3.5. overview of laws and agreements that set forth program objectives
3.1.3.6. operational costs and funding sources
3.1.4. Recommendation
3.1.5. Comments from reviewers and/or ISAB
3.1.6. Comments from operators

3.2. Klickitat spring chinook hatchery program

3.2.1. as above

etc. for all hatchery programs within each province…

Potential Project Phases for APRE Implementation

Phase I - Current Activities APRE.

- What are the goals that guide current operations of each hatchery program?
- How effective are current hatcheries at meeting these goals?
- Based on currently accepted hatchery operations, what risks (biological and ecological) are posed by current hatchery operations?

Phase II- (Bridge Phase to Phase III Implementation Planning).

Time table: Plan complete by May 2003 / Initiate by June 2003 through September 2003

Purpose Phase II

1. Develop all specific issues needed for Council and Basin support of an APRE implementation plan.
2. Develop description (story) for process from 1997 to date.
3. Develop a concept for a basin wide strategic plan for implementation.
4. Clarify what the critical elements are for an implementation plan.
5. Develop an issue paper that is the background for a strategic plan (for Phase III implementation) that frames theoretical goals and frames how the APRE reports from Phase I will be used.
6. Develop a strategy to secure funding for Phase III Implementation Planning. Gain approval and funding for implementation.
7. Complete a stakeholder analysis and a communications plan for Phase III implementation.
8. Develop at least to a 50 to 80% level, a budget, and schedule.
9. Develop a critical path and schedule for implementation planning and actual implementation.
10. Frame how Phase I data and information will be used for Phase III. Identify and describe how available resources from Phase I APRE will used to deliver Phase III Goals and objectives Data base use, APRE Reports, APRE Evaluation / Benefit and Risk Statements.

Phase III – Implementation Planning

Initiate a regional planning process and discussion on the goals and objectives of artificial production

Phase IV – Implementation of Identified Changes