



Appendices



A: 2005 Expenditures

Puget Sound and Coastal Washington Hatchery Reform Project Expenditures	FY 2005
<i>Hatchery Scientific Review Group</i>	
HSRG Members, Travel, Meeting Expenses	\$335,000
Research Grants	\$125,269
SUBTOTAL	\$460,269
<i>Washington Department of Fish and Wildlife</i>	
Agency Staffing HSRG member; HSRG support staff; hatchery biologist	\$175,000
Hatchery Database Development and Managing for Success Initiative	\$100,000
Hatchery Broodstock Integration/Segregation Plan development and implementation, equipment	\$100,000
Coded-wire Tagging Chinook and Coho	\$355,000
Hatchery New Technology Equipment	\$50,000
Hatchery Monitoring and Evaluation Fish counting, recovery of tagged experimental fish, spawning surveys; downstream enumeration, predator control, electronic tag detection, various experiment follow-ups.	\$31,000
SUBTOTAL	\$801,000
<i>Northwest Indian Fisheries Commission</i>	
HSRG Member	\$39,031
NWIFC Support Staff	\$242,206
Improve, Monitor and Evaluate Hatchery Practices Type I projects at Stillaguamish, Makah, Tulalip, Quileute, Squaxin Island, Skagit River System Cooperative, Nooksack, Port Gamble and Lower Elwha	\$428,362
Improve Hatchery Facilities Type II projects at Tulalip, Stillaguamish, Makah, Nisqually and Quinault	\$107,248
SUBTOTAL	\$816,847
<i>US Fish and Wildlife Service</i>	
Science Team	\$70,550
Management, Accountability and Demonstration Projects	\$41,500
SUBTOTAL	\$112,050
<i>NOAA Fisheries</i>	
Science Team	\$70,550
<i>Long Live the Kings</i>	
Project Coordination, Facilitation, Communications	\$238,118
Subcontracts (Gordon Thomas Honeywell)	\$175,000
Hatchery Reform Conference (<i>does not reflect full costs; LLTK supplemented from other sources</i>)	\$31,882
SUBTOTAL	\$445,000
<i>Budget Administration</i>	
Interagency Commission for Outdoor Recreation	\$34,000
US Fish and Wildlife Service	\$34,731
SUBTOTAL	\$68,731
FY 2005 TOTAL	\$2,774,447



B: 2005 Communications

OUTREACH	
Recreational Fishing Alliance January 4, 2005	LLTK Executive Director Barbara Cairns, Jim Waldo of Gordon Thomas Honeywell and LLTK Project Director Michael Kern met with Corey Freeman, who at the time represented the Recreational Fishing Alliance on the Hatchery Reform Coalition.
Briefing for Environmental Leaders January 6, 2005	Barbara Cairns and Michael Kern hosted a small gathering of key environmental leaders, to ensure they had a full understanding of the Hatchery Reform Project, update them on recent progress and discuss the project's next steps.
Steelhead and Cutthroat Policy Advisory Group January 12 & 21, 2005	HSRG Vice Chair Lee Blankenship presented to this WDFW advisory committee in Olympia on the HSRG's system-wide recommendations for steelhead. HSRG member Paul Seidel and WDFW's Andy Appleby led a follow-up workshop featuring case studies applying the All-H Analyzer (AHA) to steelhead stocks.
Wild Salmon Center January 25, 2005	Barbara Cairns and then-LLTK Director of Project Development Betsy Daniels met with Elliott Marks, who was directing a project for the Wild Salmon Center, to introduce him to the Hatchery Reform Project. Shortly thereafter, he was named Natural Resources Advisor to Washington Governor Christine Gregoire.
Shared Salmon Strategy for Puget Sound Summit January 26, 2005	HSRG Chair Lars Moberg participated in the hatchery break-out session of this conference in Tacoma. LLTK reviewed and edited the "platform statement" for that session.
Hatchery Reform Coalition February 17, 2005	LLTK coordinated this meeting held to discuss how hatchery reform fits into other salmon recovery processes, the Washington State Department of Fish and Wildlife (WDFW) biennial budget submission, and hatchery reform beyond 2005.
Adaptive Management Workshop February 28 & March 1, 2005	LLTK Fish Program Coordinator Michael Schmidt participated in a workshop in Seattle co-hosted by Washington Trout, Seattle Public Utilities and Shared Strategy on applying adaptive management to salmon recovery in Puget Sound.
WRIAs 7-10 Technical Committees March 3, 2005	Michael Kern worked with King County staff to coordinate a workshop on AHA for WRIAs 7-10. Paul Seidel and Andy Appleby conducted the workshop.
Hatchery Reform Coalition March 21, 2005	LLTK coordinated this meeting held to discuss how hatchery reform was reflected in the WDFW biennial budget submission.
Hatchery Reform Coalition April 12, 2005	LLTK coordinated this meeting held to review the purposes of the Hatchery Reform Project and the Coalition.
Cedar River Anadromous Fish Committee Presentation April 25, 2005	Michael Kern provided an overview and update on the Hatchery Reform Project to this committee chartered as part of the City of Seattle's Habitat Conservation Plan for the Cedar River.
Steelhead Summit Alliance May 14, 2005	Michael Kern provided an update on the Hatchery Reform Project in Bellevue at the spring meeting of this informal network of west coast steelhead groups.
Department of Fisheries and Oceans-Canada (DFO) June 22, 2005	HSRG Vice Chair John Barr and member Trevor Evelyn presented the HSRG's principles and recommendations to a team of DFO personnel who were applying those principles and recommendations to DFO's hatchery programs.

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Seattle Foundation Community Conversation June 29, 2005	Michael Kern participated in this forum in Seattle, sponsored by the Seattle Foundation, to ensure a hatchery reform perspective was included in the Foundation's new giving priorities for environmental issues.
NOAA Fisheries July 6, 2005	Barbara Cairns and Michael Kern met with NOAA Fisheries policy advisors Todd Ungerecht and Karl Anderson to update them on the Hatchery Reform Project, including the AHA and Managing for Success (MFS) tools.
Hatchery Reform Coalition August 4, 2005	LLTK coordinated this meeting held to receive an update on Hatchery Reform Project activities and a presentation on the US Fish and Wildlife Service's (USFWS) upcoming review of all USFWS-affiliated hatchery programs on the Columbia River.
Northwest Marine Trade Association (NMTA) August 8 & September 12, 2005	Barbara Cairns and Michael Kern met with NMTA's president, vice president and director of fishing affairs in August to introduce the Hatchery Reform Project. This led to an invitation to present to the NMTA Fish Committee in September.
Hatchery Reform Coalition October 19, 2005	LLTK coordinated this meeting held to receive a briefing on the Mitchell Act Coalition and an update on WDFW hatchery reform implementation activities.
Hatchery Reform Conference October 28, 2005	LLTK sponsored and coordinated a conference at the Mountaineers Building in Seattle REI highlighting the independent scientific recommendations and co-manager implementation case studies resulting from the Hatchery Reform Project. The HSRG presented its scientific findings.
Northwest Fish Culture Conference December 6-8, 2005	Hatchery Reform Coordinating Committee member and USFWS Hatchery Review Team Vice Chair Doug DeHart provided an update on the Hatchery Reform Project at this gathering in Boise, ID of Northwest hatchery personnel.
PUBLICATIONS	
All-H Analyzer (AHA) Overview January, 2005	The HSRG and LLTK developed a one-page overview of AHA and sent it to a list of over 300 decision-makers, managers, scientists and stakeholders. It became the basis for an HSRG/Co-Manager technical discussion paper (see below).
Conservation Hatcheries Technical Discussion Paper March 11, 2005	The HSRG publish a technical discussion paper on when to start a conservation hatchery program. It is available from the web site.
Report to Congress April 28, 2005	LLTK sent the 2005 Hatchery Reform Project Report to Congress to 20 members of Congress, Congressional staffers, and others involved in the appropriations process. It included the HSRG's synopsis and evaluation of state, tribal and federal regional progress updates, alongside co-manager and USFWS reports on accomplishments and work in progress.
Shared Salmon Strategy for Puget Sound Recovery Plan June, 2005	LLTK provided edits to the Regional Hatchery Strategy, H-Integration, and Adaptive Management sections of this plan, to encourage consistency with the HSRG's principles and recommendations.
Shared Salmon Strategy for Puget Sound E-Bulletin October 19, 2005	This email bulletin included the Hatchery Reform Conference announcement.
Fisheries Magazine Essay June 2005	The HSRG authored <i>Hatchery Reform in Washington State: Principles and Emerging Issues</i> , as the feature article in the American Fisheries Society's peer-reviewed journal. It is available from the web site.

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<p>AHA Technical Discussion Paper August, 2005</p>	<p>The HSRG and co-manager scientists published a technical discussion paper on AHA. It is available from the web site.</p>
<p>Managing for Success (MFS) Overview October, 2005</p>	<p>The HSRG developed a one-page overview of MFS, for inclusion in the Hatchery Reform Conference meeting materials.</p>
<p>Hatchery Reform Project Update Sheet</p>	<p>LLTK revised a four-page update on the Hatchery Reform Project in January and May, for use throughout the year and on the web site.</p>
<p>Hatchery Reform PowerPoint</p>	<p>Throughout the year, LLTK kept the project's PowerPoint presentation up to date and tailored it for the various audiences to whom HSRG members and LLTK staff made presentations.</p>
<p>LLTK and Hatchery Reform Project Web Sites (www.lltk.org, www.hatcheryreform.org)</p>	<p>Throughout the year, LLTK kept this site up to date, providing electronic access to information about the projects and publications including reports, meeting summaries and background information. LLTK added and maintained a background/draft documents page for the HSRG/Co-Manager Hatchery Reform Technical Discussion Group.</p>
<p>Hatchery Reform Coalition Overview/Membership List</p>	<p>Throughout the year, LLTK kept up to date a one-pager overview of the Hatchery Reform Coalition and its membership. It is available from the web site.</p>



C: 2005 Tribal Implementation Projects

(Type I projects evaluate, improve or monitor hatchery practices; Type II projects retrofit, modify or build facilities)

Type	Sponsor	Project Title	Cost	Cumulative Cost
I	Stillaguamish	Stillaguamish Chinook Smolt Production Estimation- Characteristics of Hatchery & Wild Contributions	\$32,601	\$32,601
I	Makah	Umbrella Creek Sockeye Adult Escapement Monitoring and Brood Stock Capture	\$46,394	\$78,995
I	Tulalip	Assessment of the Contribution of Tulalip Hatchery Chinook to Terminal Fisheries & Local Spawning Populations Using Otoliths	\$29,088	\$108,083
I	Makah	Lake Ozette Calcein Marking and Monitoring	\$28,420	\$136,503
I	Quileute	Coded-wire Tag Study of Sol Duc Native Summer Chinook	\$13,574	\$150,077
I	Squaxin Island	Acoustic Tagging & Tracking of Squaxin Island Coho, Hammersley Inlet Wild Salmon and Percival Cove Chinook	\$34,554	\$184,631
I	Skagit River System Coop	Evaluation of the Need to Continue Both the Fall and Summer Chinook Hatchery CWT Releases in the Skagit River	\$57,623	\$242,254
I	Nooksack	South Fork Nooksack River Smolt Outmigration & Tissue Sampling Project	\$40,775	\$283,029
I	Port Gamble	North Hood Canal Coho Straying Study	\$51,658	\$334,687
I	Quileute	DNA Fingerprinting Used to Evaluate the Degree of Introgression Between Native Summer Chinook and Introduced Spring Chinook Stocks in the Sol Duc River	\$24,478	\$359,165
I	Makah & Lower Elwha Rivers	DNA Comparison of Chinook from Pysht, Hoko, & Seiku	\$21,678	\$380,843
I	Skagit River System Coop	Identifying Relationships and Exploring Possible Mechanisms That Influence Nearshore Survival Between Hatchery & Wild Chinook in the Skagit River	\$47,519	\$428,362
Type I Total				428,362
II	Makah	Emergency Oxygen Backup System for Makah Remote Sockeye Rearing Sites	\$16,154	\$16,154
II	Nisqually	Predator Net System for Kalama Creek Hatchery	\$23,540	\$39,694
II	Stillaguamish	Emergency Oxygen Backup System for Circular Rearing Tanks at Harvey Creek	\$20,439	\$60,133
II	Tulalip	Install Bird Net Support Structure in Upper Tulalip Creek Pond (Augment FY 2004 Project Due to Unforeseen Costs)	\$28,065	\$88,198
II	Quinalt	Fish Loading and Transfer Pump	\$19,050	\$107,248
Type II Total				\$107,248
GRAND TOTAL				\$535,610



Type I Projects - projects to improve, evaluate or monitor hatchery practices

Tribe: Makah
Name of Project: Umbrella Creek sockeye adult escapement monitoring and broodstock capture
Stock and Status: Lake Ozette sockeye, ESA threatened
Hatchery: Makah National Fish Hatchery, Umbrella Creek Hatchery
Project Benefit: Essential for recovery of ESA listed stock
Project Description: The primary goal of the Umbrella Creek sockeye hatchery program is to establish viable naturally spawning populations in the habitats deemed suitable for sockeye in the Lake Ozette watershed. To determine optimum fish size at time of release in conjunction with different rearing and release strategies, all program fish are differentially thermal marked for subsequent identification using fish otolith recoveries with a subset of fish releases marked with external adipose fin clips. The marking strategy provides a mechanism to evaluate unfed fry, fed fry, and fingerling release strategies and to differentiate hatchery origin adult returns from naturally spawned adult returns. The data collected through this project will allow accurate estimation of hatchery and natural origin contribution rates for the Umbrella Creek sockeye escapement and will provide a basis to systematically collect broodstock that are representative of the entire population.

Tribe: Makah
Name of Project: Lake Ozette sockeye calcein marking and monitoring trial
Stock and Status: Lake Ozette sockeye, ESA threatened
Hatchery: Umbrella Creek Hatchery, Makah National Fish Hatchery, Stony Creek and Elk Lake remote site incubators
Project Benefit: Essential for recovery of ESA listed stock
Project Description: The primary goal of the Umbrella Creek sockeye hatchery program is to establish viable naturally spawning populations in the habitats deemed suitable for sockeye in the Lake Ozette watershed. This pilot-study is to evaluate the effectiveness of calcein as a mass-mark for hatchery reared Lake Ozette sockeye, especially as a non-lethal method to differentiate natural and hatchery origin smolts during outmigration. See above project for further background context.

Tribe: Makah and Lower Elwha
Name of Project: DNA comparison of fall Chinook from the Hoko, Seiku and Pysht rivers.
Stock and Status: Fall Chinook, SASSI depressed
Hatchery: Hoko River Hatchery
Project Benefit: Reintroduction and recovery of historical Chinook populations
Project Description: The goal of this project is to determine the degree of genetic relatedness between Chinook salmon populations in the Hoko, Pysht and Seiku watersheds. Results from this study will facilitate evaluation of the Hoko population as an appropriate source to reestablish fall Chinook in the Pysht and Seiku watersheds, which are historical Chinook habitats.

Tribe: Nooksack
Name of Project: South Fork Nooksack smolt outmigration and tissue sampling
Stock and Status: Native spring Chinook, ESA threatened
Nooksack coho, SASSI unknown
Project Benefit: Essential for preserving critical ESA listed stock



Project Description: The goal of this project is to operate a smolt outmigrant trap to 1) estimate juvenile salmonid abundances, and 2) collect representative Chinook and wild coho salmon tissue samples to genetically determine relative stock compositions while improving basin DNA baselines. This information is critical towards the development of an integrated hatchery recovery program for South Fork early Chinook, in accordance with recovery actions submitted to the Shared Strategy process.

Tribe: Port Gamble S'Klallam
Name of Project: North Hood Canal hatchery coho straying study
Stock and Status: Northeast Hood Canal coho, SASSI depressed
Hatchery: Port Gamble Bay net pens
Project Benefit: Protect genetic resources while allowing for treaty harvest rights
Project Description: The underlying issue with regard to several Hood Canal HSRG recommendations and Co-manger responses to these recommendations is straying of hatchery coho in general and of net pen reared fish in particular. This proposal is to begin a three-year study to evaluate straying of hatchery coho into north Hood Canal streams by intensively sampling coho adults in the fall and juveniles in the spring. The study will be done in collaboration with the USFWS in its investigation of the genetic makeup of regional coho populations.

Tribe: Quileute
Name of Project: Coded-wire tagging to determine contribution of wild and hatchery fish for broodstock management of native summer Chinook
Stock and Status: Sol Duc native summer Chinook, status unknown
Introduced spring Chinook, SASSI healthy
Hatchery: Lonesome Creek
Project Benefit: Preserve genetic integrity of the natural fish population while allowing for treaty harvest rights
Project Description: Proper hatchery management of an integrated program requires accurate identification of returning adult salmon of hatchery versus natural origin for broodstock purposes. This project will allow for proper management of an integrated hatchery program by coded-wire tagging juvenile summer Chinook. Additionally, project funding will be used to execute sampling for adult tag recoveries in the fisheries and on the spawning grounds. This information is necessary for estimation of adult harvest and survival rates and ultimately, evaluation of program success.

Tribe: Quileute
Name of Project: DNA fingerprinting of native summer Chinook and introduced spring Chinook stocks on the Sol Duc River.
Stock and Status: Sol Duc native summer Chinook, status unknown
Introduced spring Chinook, SASSI healthy
Hatchery: Lonesome Creek
Project Benefit: Preserve genetic integrity of the natural fish population while allowing for treaty harvest rights
Project Description: Historically, summer and spring Chinook in the Sol Duc River have coincided in the hatchery and on the spawning grounds despite management goals to segregate these two stocks. Both the Co-managers and the HSRG agree that a better understanding of the current genetic composition of the two Chinook stocks and the degree of genetic mixing that may have occurred is necessary in evaluating management success and developing future management strategies.



Tribe: Skagit River System Cooperative (Swinomish and Sauk-Suiattle tribes)
Name of Project: Evaluation of the need to continue both the fall and summer Chinook salmon coded-wire tag hatchery releases in the Skagit River
Stock and Status: Skagit lower river fall Chinook, ESA threatened
 Skagit upper river summer Chinook, ESA threatened
Hatchery: Marblemount (WDFW)
Project Benefit: Critical for recovery monitoring of ESA threatened stocks
Project Description: The Skagit River System Cooperative currently conducts two hatchery indicator stock programs. In the interest of improving hatchery efficiency and per HSRG recommendations, this project will evaluate whether the two programs provide duplicative information on pre-terminal exploitation rates and catch distributions, and if so, which stock is most suitable for indicator stock purposes. Based upon results from this study, if there are significant differences between the two stocks, then both programs will be retained to compile component-specific estimates of trends in marine survival rates, exploitation rates and catch distributions.

Tribe: Skagit River System Cooperative (Swinomish and Sauk-Suiattle tribes)
Name of Project: Identifying relationships and exploring possible mechanisms that influence nearshore survival between hatchery and wild Chinook in the Skagit River
Stock and Status: Skagit lower river fall Chinook, ESA threatened
 Skagit upper river summer Chinook, ESA threatened
Project Benefit: Critical for recovery of ESA threatened stocks
Project Description: The goal of this project is to help quantify survival estimates and investigate the degree to which biotic variables are influencing survival of juvenile Chinook salmon in the estuarine delta and marine nearshore environments.

Tribe: Squaxin Island
Name of Project: Acoustic tagging and tracking Squaxin Island coho, Hammersley Inlet wild coho and Percival Cove Chinook
Stock and Status: Wallace River coho, SaSI Healthy
Hatchery: Squaxin Island South Sound net pens / Wallace River (WDFW)
 Tumwater Falls (WDFW)
Project Benefit: Collaborative cutting-edge research with significant cost-sharing between agencies and groups to investigate fish interactions
Project Description: Coho salmon stocks in south Puget Sound continue to exhibit exceptionally low survival. There is speculation that the region is acting as a bottleneck on juvenile survival, in part due to carrying capacity effects. The objective of this project is determine fish behavior, duration of residency, rates of outmigration and survival of both hatchery and wild juvenile coho salmon in south Puget Sound. This work is in collaboration with several agencies and groups conducting similar research and involving numerous fish species.

Tribe: Stillaguamish
Name of Project: Stillaguamish Chinook smolt production estimation - characteristics of hatchery and wild contributions
Stock and Status: North Fork Stillaguamish summer Chinook, ESA threatened
 South Fork Stillaguamish fall Chinook, ESA threatened



Hatchery: Harvey Creek
Project Benefit: Critical for recovery of ESA threatened stocks
Project Description: This hatchery program is a critical component of the overall recovery strategy for Chinook populations in the Stillaguamish watershed. To direct recovery efforts, it is critical to monitor fish life-history attributes and trends in productivity and survival. More so, it is imperative to operate the hatchery program in a manner that minimizes risks to limited existing genetic resources. This project will provide information necessary to evaluate and adapt hatchery management strategies towards recovery of listed Chinook populations.

Tribe: Tulalip
Name of Project: Assessment of the contributions of Tulalip hatchery Chinook to fisheries escapement using thermal mass-marking of otoliths
Stock and Status: Snoqualmie and Skykomish Chinook, ESA threatened
Hatchery: Bernie Kai-Kai Gobin
Project Benefit: Provides treaty harvest rights while protecting ESA listed populations
Project Description: The Snohomish system is managed for natural production of all species of salmon. The Tulalip Tribe wishes to maintain this management objective while providing treaty harvest opportunity on Chinook salmon during the period of natural stock rebuilding through segregated harvest and hatchery management. This project provides program accountability by demonstrating that 1) harvest targeting hatchery production has minimal impact on local wild stocks, and 2) that the stray rates of hatchery fish to natural spawning areas is within appropriate guidelines.

Type II Projects - construction projects to retrofit, modify, or build facilities; and/or purchase of equipment to improve hatchery practices.

Tribe: Makah
Name of Project: Emergency oxygen backup system for remote sockeye rearing sites
Stock and Status: Lake Ozette sockeye, ESA threatened
Hatchery: Umbrella Creek, remote site incubators
Project Benefit: Minimize risk of catastrophic loss of ESA listed sockeye while in the hatchery
Project Description: The primary goal of the Umbrella Creek sockeye hatchery program is to establish viable naturally spawning populations in the habitats deemed suitable for sockeye in the Lake Ozette watershed. This project will enable the Lake Ozette sockeye reintroduction program to increase the abundance of threatened sockeye salmon by protecting the progeny of natural origin adults from catastrophic loss while residing in the hatchery environment.

Tribe: Nisqually
Name of Project: Predator net system for Kalama Creek Hatchery
Stock and Status: Fall Chinook, ESA threatened
 Coho, SASSI healthy
Hatchery: Kalama Creek
Project Benefit: Improve program efficiency in providing treaty harvest opportunity
Project Description: Inventory estimates have indicated losses of up to 12% of total hatchery production prior to release of juvenile fish due to predation. This project will minimize in-hatchery losses due to predation and improve operation efficiency towards providing treaty harvest opportunity.



Tribe: Quinault
Name of Project: Fish loading and transfer pump
Stock and Status: Quinault steelhead
Hatchery: Lake Quinault net pens and Salmon River Fish Culture Facility
Project Benefit: Optimize fish survival and improve program efficiency
Project Description: This project will provide needed equipment for reliable and efficient means to load and handle steelhead smolts for transport from their rearing location in Lake Quinault to point of hatchery releases in the lower mainstem Quinault River. Off-station releases below Quinault Lake are favored to minimize risks to natural populations within the lake due to hatchery -wild fish interactions, including direct predation by hatchery steelhead smolts. Purchased equipment facilitates this management strategy while minimizing injury and stress to both program fish and hatchery personnel.

Tribe: Stillaguamish
Name of Project: Emergency oxygen backup system for circular rearing tanks
Stock and Status: North Fork Stillaguamish summer Chinook, ESA threatened
Stillaguamish Coho, SaSI healthy
Stillaguamish chum, SaSI healthy
Hatchery: Harvey Creek
Project Benefit: Minimize risk of catastrophic loss of ESA listed Chinook while in the hatchery
Project Description: The objective of this project is for design, construction and operation of a backup emergency oxygen delivery system. This hatchery modification will reduce the risk of loss of listed summer Chinook in the event of a reduction or loss of gravity fed water into circular tanks holding both adult broodstock and juveniles.

Tribe: Tulalip
Name of Project: Install bird net support structures in upper Tulalip Creek pond
Stock and Status: Skykomish River coho, SaSI healthy
Hatchery: Bernie Kai-Kai Gobin
Project Benefit: Improve program efficiency by reducing in-hatchery loss of program fish due to predation
Project Description: Hatchery inventory methods have indicated significant in-hatchery loss of program fish, primarily due to bird predation. This project will provide funding for purchase and installation of bird netting at the upper Tulalip Creek rearing and release pond. Expected project benefit is reduced loss of program fish due to bird predation, improved program efficiency and increases in returns and tribal harvest of adult salmon.



D: 2006 Budget

Puget Sound and Coastal Washington Hatchery Reform Project Budget	FY 2006
<i>Hatchery Scientific Review Group</i>	
HSRG Members, Travel, Meeting Costs	\$50,000
Tribal Hatchery Reform Demonstration Projects	\$200,000
<i>SUBTOTAL</i>	<i>\$250,000</i>
<i>Long Live the Kings</i>	
21 st Century Salmon and Steelhead Management Initiative (Project Management, Facilitation and Communications)	\$250,000
TOTAL	\$500,000



E: Research Priorities for Hatchery Reform

Hatchery Scientific Review Group Technical Discussion Paper November 2005

Introduction

Application of sound genetic and ecological principles is central to the management of salmon and steelhead hatcheries. Research to promote and evaluate actions stemming from these principles is a necessary priority in support of hatchery reform. Without the refinement and application of these principles, the sustainability of salmon and steelhead populations in Pacific Northwest watersheds will be compromised, and the goals of hatchery reform will not be achieved.

However, determining the correct focus for hatchery reform research is not an easy task. Various groups have undertaken to produce hatchery operational guidelines and research plans in the past (RASP 1992; SRT 1998; APR 1999; ISAB 2003; APRE 2003; NWFSC 2001, 2004). A common approach in these documents is the description of a vast number of operational parameters and research topics that are deemed relevant to understanding the risks and benefits associated with hatchery operations, and using hatcheries to supplement natural populations.

In these research guidance documents, statements about necessary reforms in hatchery technology often imply that research must encompass problems encountered in all life history stages of salmon, and that reform of current practices should be approached by applying several scientific disciplines including genetics, physiology, behavior, nutrition, and microbiology. Direction and guidance is often provided in diverse areas of fish genetics, culture, health and nutrition; hatchery release strategies; ecological interactions (competition, predation); nutrient enhancement; habitat improvements in estuary, migration corridor, and in tributary spawning and rearing habitats; carrying capacity dynamics; etc. However, most of these past plans have provided little or no prioritization among these extensive areas of possible research, to focus on the actions most necessary to achieve hatchery goals.

We are reaching a point in the Pacific Northwest where the number of possible questions is expanding, while the funding available to study all aspects of salmon recovery is diminishing. A number of metrics and evaluators need to be used in determining how to prioritize actions necessary to resolve the key questions pertaining to where supplementation efforts will add to—rather than reduce—the total natural production of salmon and steelhead. As a result of our recent technical discussions, this group suggests that the following criteria should be the primary metrics used to prioritize hatchery research. In the present funding climate, it would seem most appropriate to focus available resources on research topics that fit these four parameters:

- 1) The *context* for the research and the importance of the question to be resolved.
- 2) The *degree of uncertainty* associated with the question.
- 3) The *tractability* of defining an answer to the question.
- 4) How *generally applicable* the results of the research will be.

In applying these parameters to our discussion of hatchery research priorities, we found two areas that are foundational to hatchery reform: 1) application of genetically integrated and segregated hatchery



operational principles to the management of hatcheries; and 2) application of physiological and ecological principles to produce hatchery fish following a wild fish template, which we hypothesize is the appropriate approach to promote ecological integrity. The genetic goal for hatchery reform is to ensure that hatchery operations do not affect the genetic constitution of natural stocks resident in these watersheds. Instead, hatchery operations should be designed so that the natural environment is the driving force in determining the genetic make-up of natural stocks within these watersheds. Secondly, hatchery operations should be consistent with ecological principles that meet the ecological objectives of the program. It is essential, therefore, that hatchery fish be reared on life history trajectories that mimic natural trajectories and releases sized so that they do not: 1) exceed the carrying capacity of the available riverine, estuarine and marine habitat; 2) displace natural stocks that also depend on that habitat; 3) overwhelm the food base present in that habitat, and 4) diminish the productivity of natural stocks through predation. Areas of focus for these genetic and ecological research topics are described below.

Background and Recommended Research Relating to Stock Genetics

Adaptation to watersheds by the salmonid populations resident in them is critical to the sustainability of these populations. It is also important that the diversity of populations in any given watershed be respected and preserved. Hence, populations should be afforded the opportunity to adapt to the conditions in the watersheds and extended environments they inhabit.

Hatchery practices that inhibit adaptation are inconsistent with long-term goals for both naturally-spawning and hatchery stocks. The frequent past practice of transferring hatchery broodstock among watersheds should be phased out. Instead, hatchery broodstock should be collected from returnees to the watershed where the offspring will be released. Further, all phases of hatchery operations should be consistent with and/or supportive of the continuous process of local adaptation.

Hatchery programs should be operated as either genetically integrated or segregated. Both of these strategies are designed to promote local adaptation and minimize fitness loss of both naturally-spawning and hatchery populations. A critical question is whether segregated and integrated hatchery programs will prove effective, over the long term, in accomplishing this important goal of promoting local adaptation. It is important, therefore, that key natural- and hatchery-origin stocks be monitored over the long-term for evidence of fitness loss or gain attributable to hatchery/natural population interactions. The development of practical methods to quantify fitness loss or gain in salmonid populations should be a high research priority.

In river systems where the infrastructure will permit it, well-controlled experiments to measure rates of adaptation in integrated or segregated populations should be undertaken. These experiments might, for instance, be modeled after genetic monitoring protocols employed in the breeding of other animals. For example, the fitness or breeding values of fish from a founder population that has been allowed to adapt to local conditions for a number of generations might be compared with that of portions of the same population (derived by using cryo-preserved gametes) that have not had the chance to adapt to local conditions for as many generations. Alternatively, fitness changes might rely on identification and monitoring of quantitative trait loci in thoroughly mapped genomes of salmon and steelhead trout populations. Such experiments should be able to identify phenotypic traits that will prove useful as indexes of domestication and adaptation, if the experiments encompass the diversity of ecosystems and the variety of species and life history patterns found in the region.



Background and Recommended Research Relating to Ecological Principles

In planning hatchery programs, the co-managers of the salmonid resource are often confronted with questions relating to the nature (e.g., the type and purpose of the programs, and the strategies used for releasing fish in order to maintain life history patterns of the reared species) and size (in terms of numbers of juvenile fish released) that their hatchery programs should assume. These questions arise because of uncertainties about the amount of suitable habitat available, the size and nature of the natural salmonid populations and other species dependent on the habitat, the capacity of the habitat to provide adequate feed for both natural- and hatchery-origin fish, and behavioral, physiological, and morphological differences between natural and hatchery raised fish.

In conducting research to resolve these questions, the research priority should be the development of qualitative and quantitative models that describe ecological processes and outcomes that could be tested and used as tools for making informed decisions on hatchery release sizes and strategies. These models should be based on general biological principles (i.e., the needs and behavior of salmonids and of the species with which they interact), so that it can take into account site-specific circumstances and be applied to all hatchery programs. In developing these models, monitoring will be needed to provide input data that may be lacking. Monitoring to check the performance of the models will also be required, so that appropriate adjustments can be made to improve the accuracy of the outcomes predicted by the models, with respect to hatchery/wild fish interactions.

Another area of ecological research that is of high importance, but did not seem as tractable, has to do with the role of hatchery fish in freshwater and marine food webs. Salmon are important determinants of aquatic and marine community structure, both as sources of abundant prey and as keystone predators. In some cases, hatchery fish may compensate for natural salmon population decline and help maintain community structure. In other cases, hatchery salmon may disrupt an existing balance. A better understanding of the role that hatchery salmon play in food webs is very important in determining the overall effect of hatchery programs. Further discussion with ecologists and other experts may help us develop tractable approaches to this research in the future.

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F: Rationale for Integrated/Segregated Broodstock Management

The HSRG developed the following text in May 2005, to help clarify what the HSRG meant when it recommended that managers identify each hatchery program as either having an integrated or segregated broodstock management strategy.

- We know from theory and observation that interactions between hatchery- and natural-origin fish will diminish the fitness of naturally-spawning populations, even though this fitness loss is difficult to measure.
- The only way to completely eliminate this fitness loss is to eliminate hatchery programs.
- However, hatcheries can provide harvest benefits.
- Hatcheries have also, in some cases, increased the abundance of populations at risk of extinction.
- Where managers choose to use a hatchery program as part of a strategy to meet harvest and/or conservation goals, there are two ways to manage hatchery broodstocks to address the associated fitness loss.
 1. *Segregated Hatchery Programs*—In these programs, the intent is to manage for two separate gene pools (one adapted to the hatchery, the other to the natural environment) and that hatchery-origin fish do not spawn in the wild.
 2. *Integrated Hatchery Programs*—In these programs, the intent is for the genetic make-up of hatchery-origin fish to be the same as that of the underlying natural population, and that natural selection in the wild drives the fitness of both components of the population. This requires that natural-origin fish be included in the hatchery broodstock and that natural spawning of hatchery-origin fish be minimized.
- In practice, it is in most cases not possible to perfectly achieve either of these strategies.
- It is a reasonable hypothesis that the increased population abundance derived from well-managed integrated or segregated hatchery programs can outweigh the associated fitness losses. Where this hypothesis cannot be supported, a hatchery program may not be appropriate.
- Both integrated and segregated programs can potentially provide fish for conservation purposes, where natural spawning by hatchery-origin fish may be desired.
- When hatchery-origin fish spawn and reproduce successfully in the natural environment, genetic risks of properly-integrated hatchery programs are expected to be less than those from segregated programs for the same level of gene flow from a hatchery program to a natural population.
- Watershed-specific goals and circumstances determine whether a segregated or integrated hatchery program is most appropriate.
- Hatcheries should be used as part of an integrated strategy (alongside harvest management, and habitat protection and restoration) to meet conservation and harvest goals on a sustainable basis.



G: HSRG Memorandum to Hatchery Reform Coordinating Committee Regarding Steelhead Management

MEMORANDUM

May 17, 2005

To: Hatchery Reform Coordinating Committee
From: HSRG Chair Lars Moberg
Re: HSRG Steelhead Recommendations

The HSRG understands that the co-managers are presently developing a new statewide steelhead management plan, beginning with a white paper. Recent conversations with co-manager personnel and stakeholders indicate that there is some confusion about the HSRG's recommendations relating to Puget Sound and coastal Washington hatchery steelhead programs. The following bullets are presented to help clear up this confusion. We hope they will also be useful in the drafting of the white paper. The HSRG remains interested in providing technical and scientific assistance to the co-managers in the development of the white paper and management plan.

- During the regional review process, the co-managers identified most naturally-spawning steelhead stocks in Puget Sound and coastal Washington as being of high biological significance and low abundance/productivity.
- Most hatchery programs were identified as segregated harvest and released/outplanted non-native stocks of Chambers or Skamania origin. This approach was ubiquitous across the system.
- Also ubiquitous in these programs was inadequate provision for the recapture of unharvested returning hatchery adults.
- Currently, few steelhead programs in Puget Sound are providing significant harvest.
- While it is difficult to monitor escapement and survival of steelhead, it has been shown that significant genetic and ecological^{8, 9} interactions occur between hatchery- and natural-origin steelhead. For example, there is a spawning overlap between the

⁸ Mackey, G., J.E. McLean, and T.P. Quinn. 2001. Comparisons of run timing, spatial distribution, and length of wild and newly established hatchery populations of steelhead in Forks Creek, Washington. *North American Journal of Fisheries Management* 21:717-724.

⁹ Kostow, K.E., A.R. Marshall, and S.R. Phelps. 2003. Naturally spawning hatchery steelhead contribute to smolt production but experience low reproductive success. *Transactions by the American Fisheries Society* 132:780-790.



hatchery (Chambers Creek origin), early-timed, winter run stock and the native, late-timed winter run stock at Forks Creek.

- Even small contributions from segregated hatchery populations to small natural populations can lead to a significant loss of fitness.
- Any segregated harvest program conducted under these circumstances will pose a high risk to naturally-spawning steelhead stocks. This creates a conflict between the co-managers' steelhead harvest goals and their conservation goals for natural steelhead populations.
- Because of low abundance and productivity, wild steelhead populations in Puget Sound cannot provide the natural-origin broodstock needed to support integrated harvest programs. Therefore, integrated harvest programs are not currently a viable alternative in most places.
- The steelhead recommendations that resulted from the HSRG's regional reviews were designed to resolve the conflict identified above between the co-managers' harvest and conservation goals. These recommendations include the following elements:
 - Select a balance of large and small streams and habitat types in each region that are not planted with hatchery fish and are instead managed for native stocks. This would reduce the risk of naturally spawning fish interbreeding with hatchery fish, and provide native stocks for future fisheries programs.
 - Fishing for steelhead in these streams would not be incompatible with this approach, but no hatchery-produced steelhead should be introduced.
 - To meet harvest goals, hatchery releases should be in those streams selected for hatchery production. Use locally-adapted broodstock for those streams.
 - Decrease reliance on out-of-basin transfers to backfill shortages in locally adapting hatchery stock. Actions such as harvest restrictions should be implemented to achieve 100% local broodstock.
 - Manage the hatchery stock to maintain its early spawn timing and reduce the likelihood of interaction with naturally-spawning steelhead.
 - Include adult collection capability wherever steelhead are released, to capture as many adults from the returning segregated population as possible. Discontinue releases where adults cannot be collected at return. Investigate feasible sites with adult collection capability, so that returning adults can be collected and removed from natural spawning population.
 - Size the hatchery program in a manner that achieves harvest goals with minimal impact on wild populations.
 - Release hatchery yearling steelhead smolts between April 15 and May 15 at target size of six fish to the pound, and a condition factor of less than 1.0.
 - Implement monitoring and evaluation as a basic component.
 - Investigate the reasons for the recent decline in adult winter steelhead returns, formulate a working hypothesis for the decline and take appropriate actions.



H: Letter from WDFW to Tribal Chairs on Future Hatchery Management



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

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August 2, 2005

Chair
Tribe
Address

RE: Future Hatchery Management

Dear Chair,

We share a unique and important government-to-government relationship as co-managers of the salmonid resources in the State of Washington. It is this relationship that carries us through the challenges associated with management of a valuable natural resource that is in part dependent upon an unpredictable environment. We hold in common a commitment to the protection, enhancement and recovery of the salmonid resources and their habitat to ensure conservation of the species and perpetuation of harvest opportunity into the future. In addition, we have a strong interest in ensuring the co-managers drive the decisions relating to operation of the hatchery system into the future.

During the past six years of hatchery reform activities, which have had a principally scientific emphasis to date, a number of tools were developed that afford us as co-managers the opportunity to move our hatchery programs forward through a more informed decision-making process. It also provides the co-managers a means to determine if our hatchery system is meeting our shared goals and objectives. The purpose of this communication is to indicate our interest to work with tribal co-managers on a watershed specific basis to review our stock goals, hatchery program goals, and identify appropriate actions.

Several recent events have prompted our interest in initiating these discussions. The most recent rule by National Oceanic and Atmospheric Administration (NOAA Fisheries) to



include several of our hatchery Chinook populations within the threatened listing status for the Puget Sound Evolutionarily Significant Unit (ESU); the hatchery Environmental Impact Statement (EIS) currently in preparation; the recovery plan development through the Shared Strategy process; and the recommendations coming out of the Hatchery Scientific Review Group. We believe it is important and the timing unparalleled for the co-managers to take the lead on how we expect our hatchery system to operate into the future, not only because of these recent events, but also because if we are to be successful at improving our hatchery system (from facility modifications to natural production management) so that our shared goals and objectives are met, then we need significant financial support at both the state and federal levels. If the co-managers lead the decision-making process and show a commitment through action, then we believe the financial support will come.

WDFW believes the tools developed by the co-managers and the Hatchery Scientific Review Group through the hatchery reform process are value neutral. That is, the tools inform decision-making, but don't make the decision. We liken the tools to a vehicle provided to the co-managers to drive. The details of what the vehicle looks like, how fast it moves, and in what direction will be determined by the co-managers. For example, the application of the integrated/segregated concept of a hatchery program is a policy decision. WDFW believes the concept represents a dial the co-managers turn to set a direction. However, timing and speed will influence progress of the direction.

The WDFW welcomes the co-manager decision to have a regional focus. We propose holding annual progress meetings between co-managers at the regional level to ensure the actions/activities that influence the direction we take meet our shared objectives. Building from the annual management meeting concept, is the recognition that an in-depth review and coordination at a higher policy level would be appropriate periodically as well. The timeline for a higher-level policy discussion may occur at intervals more consistent with evaluating major actions that have been taken or are proposed to be taken in a your region. In addition the more in-depth reviews could be timed based on brood cycles to allow for thorough technical support efforts. Sound technical information and adaptive management should inform decision-making at these policy level meetings.

It's important to reiterate the hatchery reform process has had a principally scientific emphasis to date in order to increase our understanding of the hatchery production programs. Tools were developed to facilitate this knowledge, and these tools have subsequently simplified some of the complexity that surrounds our management. We recognize co-management decisions are complex and multi-faceted, however, the foundation from which we make decisions has become more informed through the use of these tools. The WDFW values the tools developed, because we believe they represent an important means to assist in our decision-making. Therefore, we intend to use the tools and welcome joint discussion, input, review, and decision-making with our co-managers.



The annual co-manager meeting on August 10, 2005 will provide an opportunity to communicate more thoroughly the context for use of the tools, as well as WDFW's interest in meeting with tribal co-managers at the watershed level to determine the direction of respective hatchery programs into the future. We look forward to our meeting and your response.

Sincerely,

Jeff Koenings, Ph.D.
Director



I: Letter from WDFW to Shared Strategy on Recovery Plan Implementation



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February 15, 2006

Mr. Bill Ruckelshaus, Chair
Puget Sound Shared Strategy
1411 - 4th Avenue, Suite 1015
Seattle, WA 98101

Dear Bill,

Congratulations on the completion of the Regional Salmon Recovery Plan for Puget Sound. It is an outstanding document, and provides a valuable roadmap for salmon recovery in Puget Sound. More importantly it represents a consensus of federal, state, local and tribal governments, is based on sound scientific principles and was developed in partnership with local citizens and watershed groups. I am particularly proud of the role that Lead Entities played in the development of the plan.

Implementation of the Puget Sound Salmon Recovery Plan will take coordinated, dedicated efforts of all organizations with a stake in salmon recovery. It will also take leadership and commitment. Broadening the Development Committee to include leadership from each of the watersheds and other organizations that have a clear role in implementation is an excellent step and I look forward to joining you on February 15th to meet the new group. I gladly accept your request for the continued participation of Washington Department of Fish and Wildlife (WDFW) on this new regional leadership group.

I also want to assure you that WDFW is committed to implementing the components of salmon recovery that fall under our jurisdiction. As you know there are many areas where WDFW will play a key role in salmon recovery. I am committed to ensure WDFW continues to address the important building blocks of recovery summarized below.



- **All-H Integration:** One of our greatest priorities for 2006 is to move ahead quickly on All-H Integration. WDFW will work with tribes, Shared Strategy and watersheds to advance this important aspect of successful salmon recovery. We are starting this process with an All-H Integration work group on February 17th. The group includes members of Puget Sound’s Technical Review Team, NOAA, Shared Strategy workgroup, Hatchery Scientific Review Group, Tribes and WDFW. It is my goal, that by the end of the year, we have advanced all-H integration so that each watershed can produce a chapter similar to the “Integration” chapter in the Snohomish River Basin Salmon Conservation plan.
- **Harvest Management:** The co-manager’s Puget Sound Chinook Comprehensive Harvest Management plan serves as the scientific foundation for the development of annual protection strategies that are consistent with the conservation and recovery of naturally spawning fish. The implementation of this plan is having positive results with proven increases in the numbers of listed salmon on the spawning grounds. The plan has long recognized the importance of adaptive management, and that evolution in harvest management will occur in response to improved understanding of the status and productivity of populations. To that end, in conjunction with the upcoming H-Integration process, WDFW intends to review assessment data and ensure that the incidental harvest of Chinook is consistent with estimates of productivity and recovery of the Puget Sound ESU. In short, we must be progressive in where and how to focus harvest opportunities to assure both healthy populations and healthy fisheries.
- **Hatchery Reform:** The Hatchery Scientific Review provided valuable guidelines and principles to reform hatchery programs. While over 700 of the 1,100 actions are underway, significant work remains to be done. Watershed by watershed, WDFW’s hatchery objectives will be reviewed as part of the H-Integration process. This review may lead to changes in hatchery goals and objectives or operations or both. When changes are identified by the co-managers, a hatchery program will be re-evaluated using the scientific tools provided through the hatchery reform process to ensure that the hatchery program is the appropriate size and type for helping to achieve harvest and conservation goals for the watershed.
- **Habitat:** The Department is supporting implementation of salmon recovery plans through five major efforts:
 - **Puget Sound Nearshore Partnership (PSNP):** The WDFW is the lead non-federal partner in the Puget Sound Nearshore Ecosystem Restoration Project. The Army Corps of Engineers project is working to complete a science-based feasibility study for a large-scale ecosystem restoration project in Puget Sound. We are also working in conjunction with Puget Sound Action Team to provide support and coordination with the Governor’s Puget Sound Initiative and the Puget Sound Partnership. PSNP will continue to provide technical support to priority large-scale restoration activities. In addition, the Department is



working with Lead Entities to identify regional priority salmon recovery projects for funding through the “Estuary and Salmon Recovery” budget request.

- **Salmon Recovery Funding Board:** The department will continue to actively participate in the Salmon Recovery Funding Board and by supporting the “2496” process. Watershed Stewards will assure that local implementing organizations have access to agency technical tools, data and expertise. In addition, we will expand our efforts to help Lead Entities improve their local prioritization processes. The Department is initiating a project to provide watershed groups with habitat project management tools through development of Habitat Work Schedules. These schedules will help potential project funders find local and regional priority projects. And finally, the Department will continue to support local sponsors, such as Regional Fish Enhancement Groups to identify priority salmon recovery projects to bring forward.
- **Habitat Protection:** WDFW is beginning implementation of a project to assure that the HPA program and agency land management are being executed in compliance with the federal Endangered Species Act through a variety of potential tools and programs, including HCP’s. The Department’s Mitigation Optimization project is developing collaborative processes that will bring local, state and federal permitting agencies together to improve the effectiveness of mitigation by linking mitigation decisions to priority watershed restoration and protection needs. Through the Puget Sound Nearshore Ecosystem Restoration Project, WDFW is developing science “white papers” detailing the habitat needs of various species, including juvenile salmon, in the estuaries and shorelines of Puget Sound. The Department will work with local governments to incorporate this science into local land and water management processes. The Department will continue to pursue acquisition and conservations easements for the long-term protection of priority salmon habitat through a variety of local, state, and federal programs, such as the WWRP as outlined in it’s recently published “Lands 2020” document. And finally, the Department is committed to improving the effectiveness and efficiency of the HPA permitting process.
- **Monitoring and Adaptive Management:** WDFW will continue to co-chair and provide staff support to the Governor’s Monitoring Forum. WDFW will also continue to participate in the Shared Strategy AAM workgroup and upcoming workshops. Scheduling these workshops to avoid major fish management forums, like North of Falcon, will help us get the appropriate staff at these important workshops. A recent letter from the Association of Washington Cities and the Washington State Association of Counties to Jay Manning, (Director of the Department of Ecology) suggested that Ecology, WDFW,



Shared Strategy, Northwest Indian Fish commission and local jurisdictions get together to discuss common monitoring principles. It is important for all of us to work with them on this request. The Department will continue to expand and improve on its ability to monitor “fish in” and “fish out” for core populations critical to salmon recovery in the Puget Sound basin.

- Finally, all of these activities require adequate funding. The Department will continue to work closely with you, Bill, and to serve as lead for a multi-agency effort to advocate for state and federal funding for the Pacific Coastal Salmon Recovery Fund, the Puget Sound Nearshore Ecosystem Restoration Project, and other projects, programs and activities critical to the implementation of the Puget Sound recovery plan.

Sara LaBorde, WDFW Salmon Recovery Coordinator, will work with Shared Strategy to detail the timeline of these actions, as well as develop a reporting system to ensure that WDFW fulfills these commitments as we move forward.

Bill, thank you for your outstanding leadership and for absolute commitment to a citizen-led, “bottom-up” approach to salmon recovery. I look forward to the opportunity to advance implementation of the Puget Sound Salmon Recovery plan and being an integral part in developing health, sustainable salmon populations in Washington.

Sincerely,
Jeffrey P. Koenings, Ph.D.
Director



J: Letter from WDFW Director to Staff on Hatchery Reform Conference



State of Washington
DEPARTMENT OF FISH AND WILDLIFE

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December 9, 2005

Name
Division

Dear Name,

On October 28th, the Long Live the Kings and the Mountaineers hosted the “Hatchery Reform: Managing for Success” workshop. This event marked an important step in hatchery reform as it represented the transition from the science-based review and identification of necessary actions to implementation. It also affirmed the commitment by the co-managers to state/tribal implement hatchery reform at a watershed level to achieve our shared goals and objectives.

The Hatchery Scientific Review Group’s (HSRG) process that each of you contributed to was a monumental effort. In reviewing over 200 Puget Sound and Coastal Washington programs, you have participated in a process unparalleled anywhere in the country. Placing your programs and your efforts under the magnifying glass takes courage as well as an extraordinary amount of time and effort. I am glad you were up to this challenge.

Often times such program reviews fail either under their own weight or from a lack of interest on the “reviewee’s” part. I want to thank each of you for your dedication and effort in helping the HSRG make this review process successful. The results of this process – the recommendations and tools like the “All H Analyzer” and “Managing for Success” are excellent contributions to Washington’s hatchery and fishery management programs.



An important next step in implementation is making sure there is co-manager agreement on goals and actions. At the annual co-manager meeting in August, there was agreement by the co-managers to collaborate at the watershed level for implementation of hatchery reform, and optimally to integrate our hatchery and harvest actions. WDFW is developing a schedule in cooperation with the Tribes to begin these watershed level specific discussions. Watershed level discussions by the co-managers will focus on stock goals, hatchery program goals, and identification of appropriate actions to achieve our shared goals. Clearly, this watershed specific collaboration will involve significant effort and commitment by all of us, but it is an important step in implementation of hatchery reform.

To make sure we continue making progress, I am asking Heather Bartlett, Paul Seidel, Pat Frazier, and Ron Warren to provide me with a current status and then regular updates on the following:

- Hatchery Reform Actions
 - Actions completed
 - In progress
 - Funded
 - Remaining to be done, their priority and implementation plans
- Goals of hatchery and harvest programs
 - Stock, escapement and program goals
 - Status of joint discussion, input, review, and agreement with our co-managers
- Managing for Success tool
 - Steps to completion for hatchery, harvest and habitat sections
 - Capability to use to report WDFW salmon recovery actions
 - Viewable by staff and citizens
- Communication
 - Method WDFW employees involved in hatchery reform will be kept updated on progress
 - Method this will be included and salmon recovery reporting

It is important that the great work and momentum for hatchery reform continue. Thank you for your continued efforts.

Sincerely,

Jeffrey P. Koenings, Ph.D.
Director



K: Hatchery Reform in Washington State:
Principles and Emerging Issues,
(Fisheries Magazine, June 2005)

(Available at www.fisheries.org/html/fisheries/F3006/F3006p11-23Seeb.pdf)



L: Hatchery Reform Conference Summary

(Attached as a separately bound publication and/or available electronically from the Publications page of www.hatcheryreform.org)