

MEMO 07 Dec 2010
TO Puget Sound Partnership Science Panel
FROM Paul Cereghino, Restoration Ecologist, NOAA
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Under the auspices of the [Estuary and Salmon Restoration Program](#) and [The Nearshore Project](#), WDFW and [NOAA Restoration Center](#), has been working to develop an adaptable, science-based, and broadly inclusive system for prioritizing, funding, and evaluating restoration and protection actions in the Puget Sound nearshore. ESRP's 2011 Investment Plan anticipates supporting WDFW, RCO, NOAA, and PSP capital investments based on evaluation under a system of criteria-based peer review.

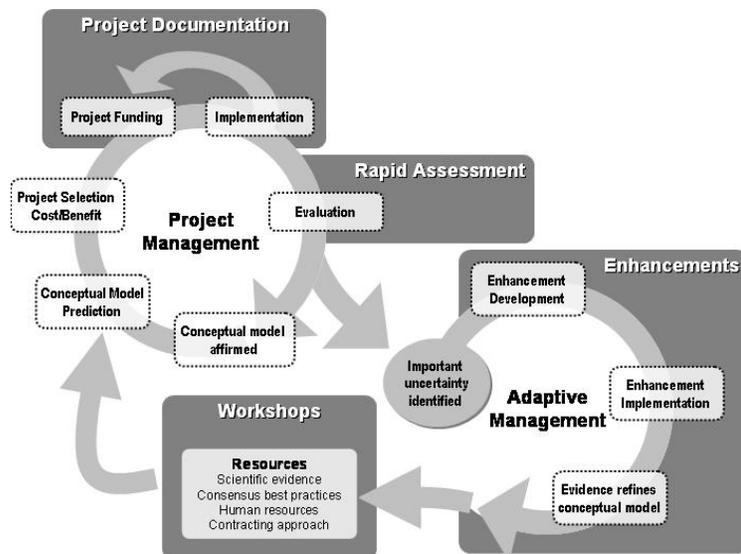
To maximize the impact of capital investments, we are incrementally building a model adaptive management system (as discussed by Holling and others) to drive allocation of monitoring resources, and ultimately guide project development and selection. We believe this system will substantively advance Priority Investigation #1 of your Biennial Science work plan, and does so in a way that builds community capacity, supports shared model development, and improves communication networks in the best spirit of scientific inquiry, while remaining integrally linked to capital project decision making.

The 2011 ESRP Investment Plan will be ratified by the PSP Leadership Council at their February 2011 meeting. This prioritized list of funding actions included in the 2011 ESRP Investment plan will include: 1) new project funding, 2) incremental funding for portfolio projects, and 3) *project enhancements* which support adaptive management.

We would like the Science Panel to be familiar with our developing adaptive management system, how this relates to project enhancements, and how we propose to engage the Nearshore Science Team and the Science Panel in our work.

Our Approach

Consistent with [Nearshore Program guidance](#) we are developing the ESRP grant program with an integrated adaptive management system. The figure to the right describes interaction between adaptive management and capital project management. In this approach, we identify important uncertainties that can be addressed



through project implementation and monitoring (i.e. ‘adaptive management objectives’). We then design ‘enhancements’ to ESRP awards that improve our ability to predict and design for maximum project benefits. ‘Enhancements’ may involve augmenting the funding and scope of a project award, or potentially selecting a third-party to complete an investigation that compliments project awards. During each award cycle, an enhancement workgroup is assembled from Nearshore Project agency partners. The team identifies and prioritizes enhancements to be included in our ESRP Investment Plan. In many cases we identify enhancement partners to leverage limited state funds, just as if we were developing a restoration project. Past enhancements have included:

- Increased outreach and monitoring at Olympic Sculpture Park (SPU; 2006)
- Develop river delta monitoring objectives (Skagit River System Coop; 2006)
- Develop system wide monitoring strategy for Snohomish Delta (Tulalip/NOAA; 2007)
- Develop standards and BMPs for nearshore wood waste remediation (DNR ; 2008)
- Develop adaptive management strategy for beach restoration (USACE/USGS; 2008)
- Develop adaptive management strategy for river delta restoration (TNC; 2008)
- Evaluate tidagate effects on fish utilization and physical processes (NOAA; 2009)

The 2011 Enhancement Process

This round a set of Adaptive Management Objectives have been published in the [2010 RFP](#) and 2010 ESRP Guidance and Strategy documents reflecting the best professional judgment of ESRP staff . Our 2011 development schedule is as follows:

- Dec 21** **Enhancement Workshop** – enhancement workgroup completes review and ranking of candidate enhancements. ESRP team provides support materials.
- Jan 4** **NST Review** – NST provides critique and guidance for proposed enhancement plan based on status of emerging nearshore science.
- Jan 7** **PSP Science Panel Coordination** – Draft provided to PSP Science Panel to maximize consistency and coordination with other regional efforts.
- Jan 19** **Steering Committee Review** – PSNERP Steering Committee reviews ESRP Spending Plan development, under ESRP project management guidance.
- Feb** **PSP Leadership Council Ratification** – Enhancement spending plan is reviewed as part of the 2011 Spending Plan.
- April** **Enhancement Development** – Pending state budget, enhancement scope is developed using award negotiation, interagency, and/or competitive mechanisms.

This is a developing process that will be developed into a more comprehensive adaptive management strategy that directs project and programmatic monitoring to answer priority questions about the management of beach, embayment, and river delta ecosystems. This strategy development is underway for river delta and beach ecosystems, and we have recently completed a regional workshop to build consensus on delta restoration learning priorities (see attached agenda).



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Program Information

Contact Information

Questions regarding this RFP should be directed towards Betsy Lyons, 360-902-2572, ESRP@dfw.wa.gov.

Program Objectives

The Washington Department of Fish and Wildlife, Recreation and Conservation Office, the Puget Sound Partnership, and partner organizations are seeking exemplary projects of regional importance that restore nearshore ecosystem processes and functions. Ecosystem protection actions are ranked competitively alongside restoration actions based on assessment of completed project costs and benefits. Estuary and Salmon Restoration Program (ESRP) projects should exemplify best practices and reflect the highest use of conservation dollars in the nearshore ecosystem.

Actions will be selected and funded consistent with the strategies and guidance of the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP). Criteria used to rank projects are found in Appendix G of [ESRP Guidance](#) as well as in the attached narrative template. ESRP funded projects are managed as ‘early action’ projects in advance of a national ecosystem restoration plan for Puget Sound and contribute to implementation of the Puget Sound Partnership’s Action Agenda. ESRP projects either, 1) provide substantial and cost effective restoration or protection of ecosystem functions, goods, and services, and/or 2) allow evaluation of cutting-edge ecosystem restoration tactics and strategies for the purpose of increasing efficiency and effectiveness of future activity.

Protecting and Restoring Nearshore Ecosystem Processes

The nearshore ecosystem of Puget Sound is a dynamic environment strongly shaped by physical and ecological processes. PSNERP guidance suggests that projects designed to protect and restore those ecosystem processes that shape and sustain nearshore structure are most likely to provide sustained improvements in ecosystem functions, goods, and services, thereby justifying capital investment in ‘ecosystem infrastructure’ that supports these processes. Examples of nearshore ecosystem processes include river delta floodwater and sediment distribution, tidal inundation, beach sediment supply and transport, primary production, and nutrient cycling. Appendix C of the [ESRP Guidance](#) provides a list of the target ecological processes that can best meet PSNERP objectives. Applicants are advised to consult this document as they prepare proposals and develop projects.

Beach projects that protect and/or restore sediment supply and transport are under-represented in the nearshore database and ESRP’s portfolio yet will be vital to fully address PSNERP’s nearshore protection and restoration objectives. We strongly encourage projects that restore or protect sediment supply.

Enhancement Objectives

ESRP recognizes that funding programs play a critical role in improving restoration practices and that field implementation offers a critical opportunity to evaluate tactics and strategies. ESRP manages its project portfolio under an adaptive management model, by planning scientific investigations to resolve management questions important for project success. Through the technical review processes, reviewers will be looking for projects that address critical questions or issues and may be candidates for enhancement funding. The following questions have been identified as having an impact on restoration practice, and could be answered through ESRP project enhancements and coordination:

Beach Systems

- **What is the biotic response to changes in shoreline vegetation?** We would like to be able to predict how changes in shoreline vegetation affects shoreline dependant biota.
- **What is the biotic response to changes in beach profile and texture?** We would like to be able to predict how a change in beach structure will affect shoreline dependant biota.
- **What level of sediment supply is necessary to sustain beach structure?** We would like to be able to predict how change in rate of sediment supply will affect the structure of beach ecosystems both locally and at the scale of a drift cell.
- **How does the condition and configuration of beach ecosystems components affect ecosystem functions?** We would like to be able to predict the extent to which the presence and condition of creek mouths, backshore and low tide terrace features, and marine riparian zones, cumulatively affect ecosystem functions.

River Delta Systems

- **How does variable extent of dike removal affect restoration benefits?** We would like to be able to predict the affects of remnant dike configuration on hydrology, biota, and sediment deposition in relation to different alluvial and tidal regimes for the purpose of designing dike removal actions.
- **How should we be preparing sites for dike removal?** We would like to be able to predict the effect of earthwork treatments like tillage, channel excavation, and ditch filling on vegetation development and channel formation following dike removal for the purpose of determining optimal restoration treatments.
- **How does tidal marsh channel character contribute to estuarine function?** We would like to be able to predict the effect of tidal channel structure on biotic community response for the purpose of evaluating actions that effect channel formation outcomes.
- **How should we evaluate actions that change the distribution of river distributaries across a delta?** We would like to be able to predict how the characteristics and configuration of river delta distributaries affect biota for the purpose of prioritizing distributary reconnection in river delta restoration.

- **How does the size and connectivity of delta habitat patches affect ecosystem functions?** We would like to be able to identify how the representation of wetland types, their size, and their connectivity to each other and alluvial processes affects the biological benefits of delta restoration.

Embayments and Inlets

- **What parameters can be used to best evaluate the effects of restoration, as well as shoreline and watershed development, on the habitat functions of embayments and coastal inlets?** We would like to more efficiently characterize and monitor changes in the function of embayments as a result of restoration or other changes in ecosystem structures and processes.

Social Barriers to Restoration

- **What factors determine whether a landowner installs shoreline armoring or is willing to remove shoreline armoring?** We would like to be able to predict the location of willing landowners for the purpose of protecting and restoring sediment supply and transport within segments of drift cells or across a whole drift cell.
- **How can river delta restoration provide multiple benefits to delta residents?** We would like to be able to develop restoration strategies within river deltas that engage and provide increased ecosystem services to local stakeholders.

In addition, the development of beach restoration actions that restore historic sediment supply and transport for the benefit of beach dependant biota is a critical area for development. Such projects will be given consideration as part of development of our enhancement proposals.

Achievement of these objectives may involve collaboration in monitoring across projects, or increasing or changing the scope of a proposal to increase the effectiveness of monitoring. Projects can increase their competitiveness by developing robust investigations that are likely to increase knowledge that improves restoration practice. In addition elements of proposals may be identified and advanced as part of the development of Enhancements as described in Appendix A (Learning Strategy) of the [ESRP Guidance](#).

Program Guidance

Additional program information can be found at the [Estuary and Salmon Restoration Program](#) and [PSNERP](#) web pages including materials summarizing our understanding of the processes and functions of the nearshore ecosystem. A new edition of the ESRP Strategy and Guidance document ([ESRP Guidance](#)) has been published and posted in association with this RFP. This document provides details related to the development of the 2011 Spending Plan development, including:

- A description of the ESRP stewardship and learning strategy (Appendix A),
- A list of PSNERP draft objectives and target ecological processes (Appendix C),
- A definition of what constitutes a ‘project’ (Appendix D),
- A description of project status categories and associated evidence of readiness (Appendix F),
- The evaluation criteria that will be used to rank your project (Appendix G),
- A summary of PSNERP Management Measures (Appendix I), and
- A summary of the PSNERP shoreline classification (Appendix J).

Award Information

Anticipated Funding Sources

This RFP will be used to develop the 2011 ESRP Spending Plan. This spending plan will distribute funds from 2011/13 state appropriations. ESRP will continue to seek external

A Workshop on
Monitoring and Restoring Puget Sound River Deltas

Friday, December 3, 2010; 9 a.m. – 4 p.m.

Seattle Center, Shaw Room, Corner of Republican Street and 1st Ave North

Sponsored by the Estuary and Salmon Restoration Program (ESRP),
The Nature Conservancy and NOAA

Workshop goals

1. Identify key scientific questions that can be used to improve our understanding of river deltas and their restoration, and begin to prioritize the questions.
2. Obtain input from practitioners on how we can use monitoring to reduce uncertainty in restoration practice and improve future delta restoration projects.
3. Identify how practices and monitoring may better address the concerns of policy-makers involved with funding river delta restoration.
4. Initiate an ongoing dialogue within the regional river delta restoration community that facilitates the cross pollination of ideas, collaboration in monitoring and sharing of lessons learned.

Agenda

9:00	Welcome, introductions and goals of the workshop	Roger Fuller
9:20	A Monitoring Strategy: Learning from Restoration	Paul Cereghino
9:40	A conceptual model for project monitoring	Roger
10:00	Breakout group 1: <u>Restoration goals</u>	see below for details
10:45	Break	
11:00	Report back from breakout groups	
11:30	Breakout group #2: <u>Identifying knowledge and tool gaps: Part 1</u>	see below for details
12:15	Lunch (provided)	
1:15	Breakout group #2: <u>Continued: Part 2</u>	
2:00	Report back from breakout groups	
2:30	Break	
2:45	Breakout group #3: <u>Lessons Learned</u>	see below for details
3:15	Report back from breakout groups	
3:45	Synopsis	Roger and Paul
4:00	Adjourn	

For those able to linger, we will migrate to nearby eateries for an informal, topical “Happy Hour”, based on the interests of attendees.

Breakout group topics:

Breakout #1: Restoration Goals (45 minutes)

- When describing your goals for river delta restoration projects, do you think in terms of Ecosystem Functions, Goods and Services (EFG&S)? Which ones? If not, what do you describe as the target of restoration?
- Salmon recovery goals are perhaps the most common target of restoration. Other targets are not as common or widely recognized. These less common targets include other species/habitats such as migratory birds or transitional scrub-shrub; functional targets such as climate change adaptability or system-wide habitat complexity and connectivity; and services such as flood control or nutrient capture. **In order to make greater progress towards restoring functional and resilient river deltas, on which targets should we be focusing?**
 - What two restoration targets...
 - are most at risk
 - have the greatest uncertainty
 - are most difficult to restore
 - are most socially compelling
 - will get us closest to functional and resilient river deltas

Breakout #2: Identifying knowledge and tool gaps (90 minutes)

- What physical, biological, technical and socio-economic questions do we need to answer in order to more successfully and efficiently restore river delta function and resilience? And what are their relative priorities? What criteria do you use to prioritize them (e.g. importance of knowledge gap, feasibility, likelihood of changing restoration methodology, influence on decision makers)?
- What two questions, if answered, ...
 - ...represent the most important **uncertainties** in our understanding of how the ecosystem “works”
 - ...are most **feasible** (cost, time, complexity) to address through project monitoring
 - ...would most likely **change the practice** of restoration (the way we approach planning, design, implementation)
 - ...are most likely to **influence policy makers** and funders
 - ...are most likely to **increase community support** for more restoration

Breakout #3: Lessons learned (30 minutes)

- Thinking of past projects in which you were involved, **what do you wish you knew** (or that you had monitored subsequently)?
- If you could do it over, **what should you have measured or learned** in the time since the project was completed?