



Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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www.nwcouncil.org/fw/isrp

2006 Retrospective Report Presentation

Dr. Eric Loudenslager, ISRP Chair, and Dr. Peter Bisson, Vice-chair, will present key findings from the ISRP's 2006 Retrospective Report. The report's executive summary is included below. The full report is available at the Council's Web site: www.nwcouncil.org.

Executive Summary

Background

This Independent Scientific Review Panel (ISRP) report provides the retrospective evaluation of benefits to fish and wildlife from projects funded by Bonneville Power Administration to implement the Northwest Power and Conservation Council's Fish and Wildlife Program called for in the 1996 amendment to the Northwest Power Act and included in the 2000 Fish and Wildlife Program.

The Council, together with the ISRP, gathers information to determine the benefits of Fish and Wildlife Program projects by having project sponsors provide results and explain their progress in proposals submitted to implement the Council program and secure Bonneville funding. In 2006, the ISRP reviewed 540 new and ongoing proposals for the Council's FY 2007-09 project selection process. In June 2006, the ISRP completed that review and identified significant programmatic issues in the Fish and Wildlife Program along with the panel's preliminary proposal recommendations. This report extends the programmatic review, providing (1) an analysis of results reporting in FY 2007-09 project proposals, (2) guidance to improve future reporting and program evaluation, and (3) a comparison of FY 2007-09 project recommendations from the ISRP and Council with each other and 2001-03 Provincial Review recommendations.

In conducting this evaluation, the ISRP examined proposals for existing projects (262 of the 540 total) and sought evidence of reporting of tasks completed, physical habitat data, biological data, evaluation of data by sponsors, and application of data analyses to management activities. Based on the reporting, the ISRP assessed the adequacy of the reporting, but did not evaluate the merit, accuracy, or robustness of measurable benefits to fish and wildlife made through specific Bonneville-funded projects. The level of detail in the FY 2007-09 proposals is not sufficient to undertake such a rigorous evaluation at the program-wide or project-specific level.

Findings and Recommendations

The ISRP's primary observation from our evaluation of the FY 2007-09 proposals for existing projects is that over 40% of the projects need to improve their reporting of results. A variety of factors can help explain this deficiency in reporting. In the response loop 8% of the projects reported results at a sufficient level by adding information not provided in their initial proposals. This improved reporting indicates that in some cases the problem was inadequate summarizing, analyzing, and interpreting results in a project proposal rather than lack of data.

Recommendation: Although the current proposal form includes instruction and emphasis on results reporting, the Council and ISRP should develop proposal forms that more explicitly require the reporting of data on physical habitats, biological objectives, summaries of data analysis, and the application of analysis to fish and wildlife management.

For a large portion of projects, however, the problem with reporting likely extends beyond simply summarizing data or data analysis and indicates that a general lack of data collection from a rigorous monitoring and evaluation (M&E) program might be the issue. Specifically, our evaluation shows that this problem especially applies to proposals for habitat restoration in province-level submissions, of which 45% needed improvement and 17% were deemed in critical need of improved reporting. In contrast, for research-oriented projects in the mainstem/systemwide category nearly 75% of the proposals had adequate to mostly adequate reporting.

Recommendations: Monitoring and evaluation should accompany all fish and wildlife habitat restoration projects in order to demonstrate accountability and ecological effectiveness. Statistical and monitoring design support should be made available to sponsors with limited statistical expertise.

Alternative metrics for evaluation may be required for certain project categories such as administrative and educational projects. For example fish tagging projects could be measured by the utility of the data to be used to estimate the vital statistics used in harvest and escapement.

The Council and ISRP should develop proposal submission forms that include identifying which type(s) of monitoring will be undertaken for a project.

In the FY 2007-09 proposals, the level of monitoring and subsequent reporting of habitat project accomplishments was inconsistent. To provide guidance for establishing and reporting reasonable, effective monitoring procedures as part of the project planning process the ISRP suggests the following general framework for monitoring and evaluating Fish and Wildlife Program habitat projects. This hierarchical framework provides different levels of detail and sophistication in monitoring and evaluation guidelines for different types of projects. The ISRP appreciates that each project will not be held to a one-size-fits-all M&E standard.

Recommendations:

Implementation Monitoring

There are many types of habitat improvement projects currently being funded under the Fish and Wildlife Program. We believe all should be monitored for implementation success, and we support the need for accurate implementation metrics as a necessary first step in any M&E effort.

Effectiveness Monitoring

Some form of effectiveness monitoring should accompany any habitat project. The overall level of effectiveness monitoring that has accompanied many projects in the past has not been adequate to address the basic question – are they working? Project sponsors should collect and analyze data that document whether the project is achieving, or is failing to achieve, its stated objectives and is realizing desired habitat and/or target population and/or multi-species benefits.

The ISRP recognizes that habitat projects vary widely in scale and in type, and that elaborate effectiveness monitoring may not be required in every instance. Most of the effectiveness monitoring recommended for individual projects is focused on measuring long-term habitat changes that take place after a project is implemented. The ISRP continues to believe that population-level monitoring is essential to gaining a better understanding of restoration effectiveness. The ISRP recommends continuing with Intensively Monitored Watersheds.

Recommendation:

Intensively Monitored Watersheds

To properly address population-level response of fish species to habitat restoration, we recommend that a network of intensively monitored watersheds (IMWs) be maintained. Here restoration efforts can be coordinated in a way that will facilitate experimental learning by applying enough similar treatments to produce statistically robust results, coupled with thorough inventories of adult, juvenile, and smolt abundance.

In this retrospective evaluation, the ISRP found that 40% (85 proposals) of the ongoing proposals recommended by the Council for funding are deficient in results reporting, and 32% (70 proposals) of the proposals with fundable ISRP recommendations are deficient. Most of those proposals that were deficient received an ISRP fundable (qualified) recommendation, and subsequently the Council included conditions to address these deficiencies in their recommendation to Bonneville. In sum, most of the proposals that the ISRP found in critical need of improved reporting received Council funding recommendations that included conditions to address deficiencies identified by the ISRP before the next project selection process. However, for the proposals that the ISRP found fundable, the Council did not typically identify conditions for Bonneville funding, so those that appear deficient in reporting results are not currently under further review.

Recommendation: ISRP proposal reviews should explicitly address the level and quality of reporting so the Council can use this information more effectively in developing their recommendations to Bonneville. (This ISRP recommendation essentially applies to our internal ISRP review process rather than any potential Council action.)

ISRP 2006 Retrospective Report

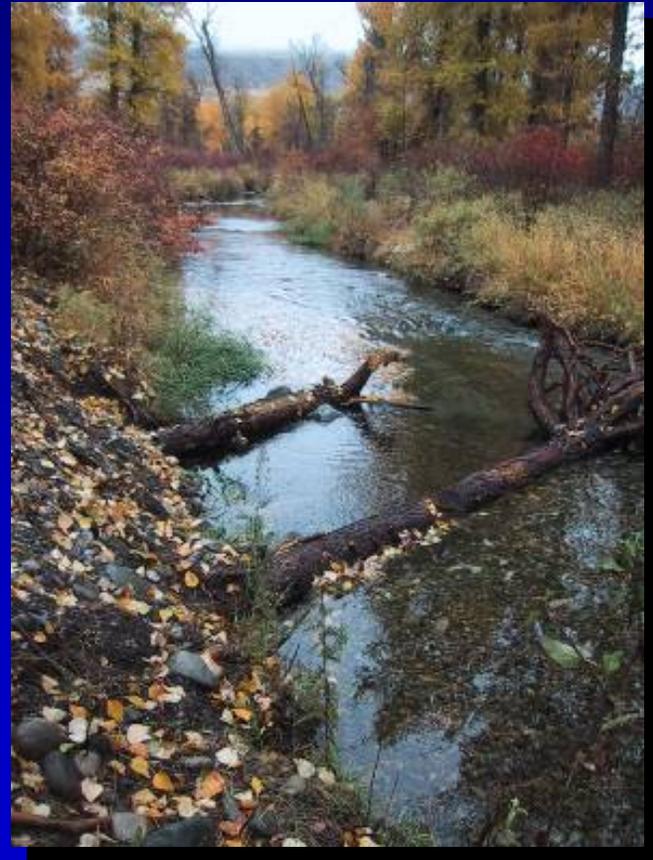
Dr. Eric J. Loudenslager

Dr. Peter A. Bisson

*Northwest Power and
Conservation Council*

Boise, Idaho

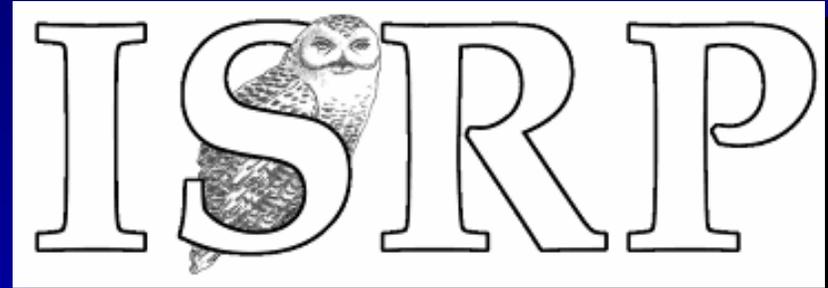
March 13, 2007



Independent Scientific Review Panel

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ISRP Review Responsibilities

1. Projects proposed for Bonneville funding to implement the Council's F&W program
2. Retrospective review of program accomplishments
3. Projects funded through Bonneville's reimbursable program



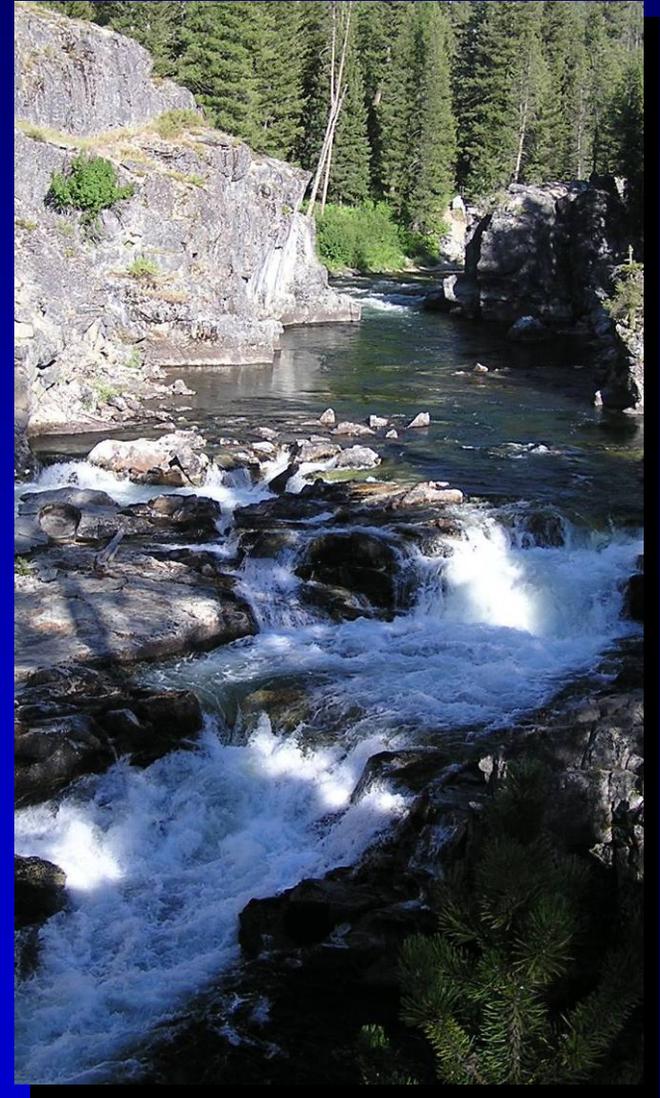
Retrospective Review

Review the results of prior year expenditures:

Focus on measurable benefits to fish and wildlife

Provide biological information for the Council's evaluation of the success in meeting program objectives

Summarize ISRP province review efforts and identify major basinwide programmatic issues

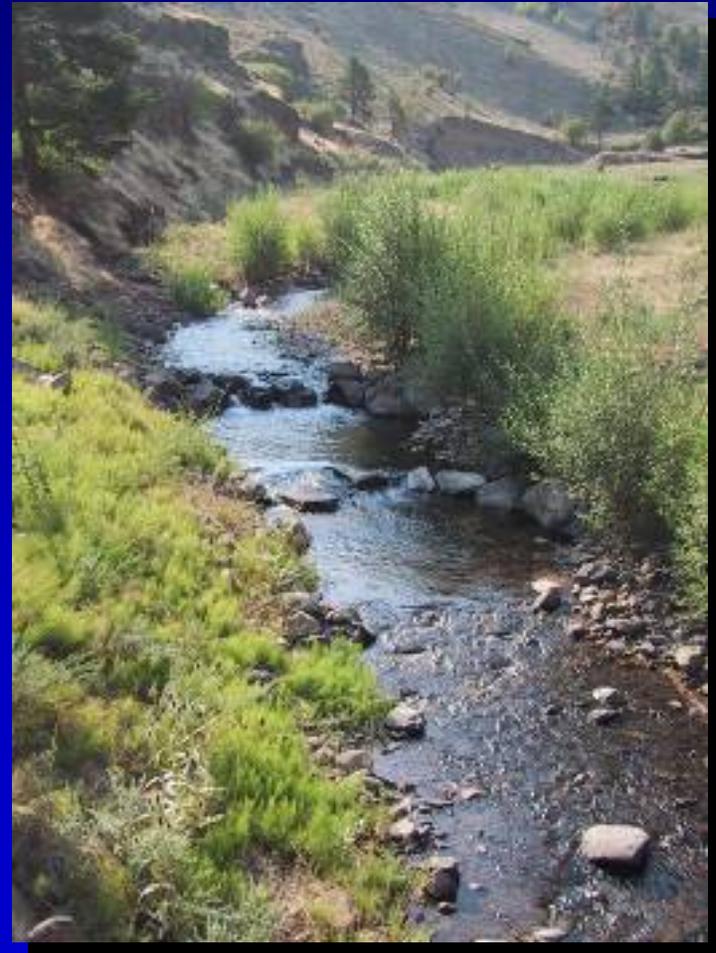


2006 ISRP Retrospective

Results Reporting in FY
2007-09 Proposals

M&E Guidance to Improve
Habitat Restoration
Reporting

Summary comparison of FY
2007-09 ISRP Review with
Council Recommendations
and the 2001 – 03 Provincial
Review



Results Reporting in FY 2007 – 09 Proposals

ISRP Examined Ongoing Project Proposals (260 of 540) for evidence of reporting:

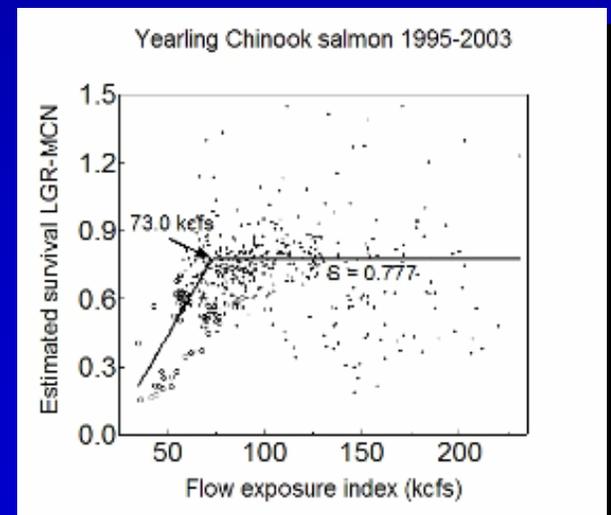
Tasks Completed

Physical Habitat Data

Biological Data

Analysis and Evaluation of Data

Application of Data Analysis to Management



Results Reporting in FY 2007 – 09 Proposals

Assessment of the Adequacy of Results Reporting

Adequate

Adequate for type

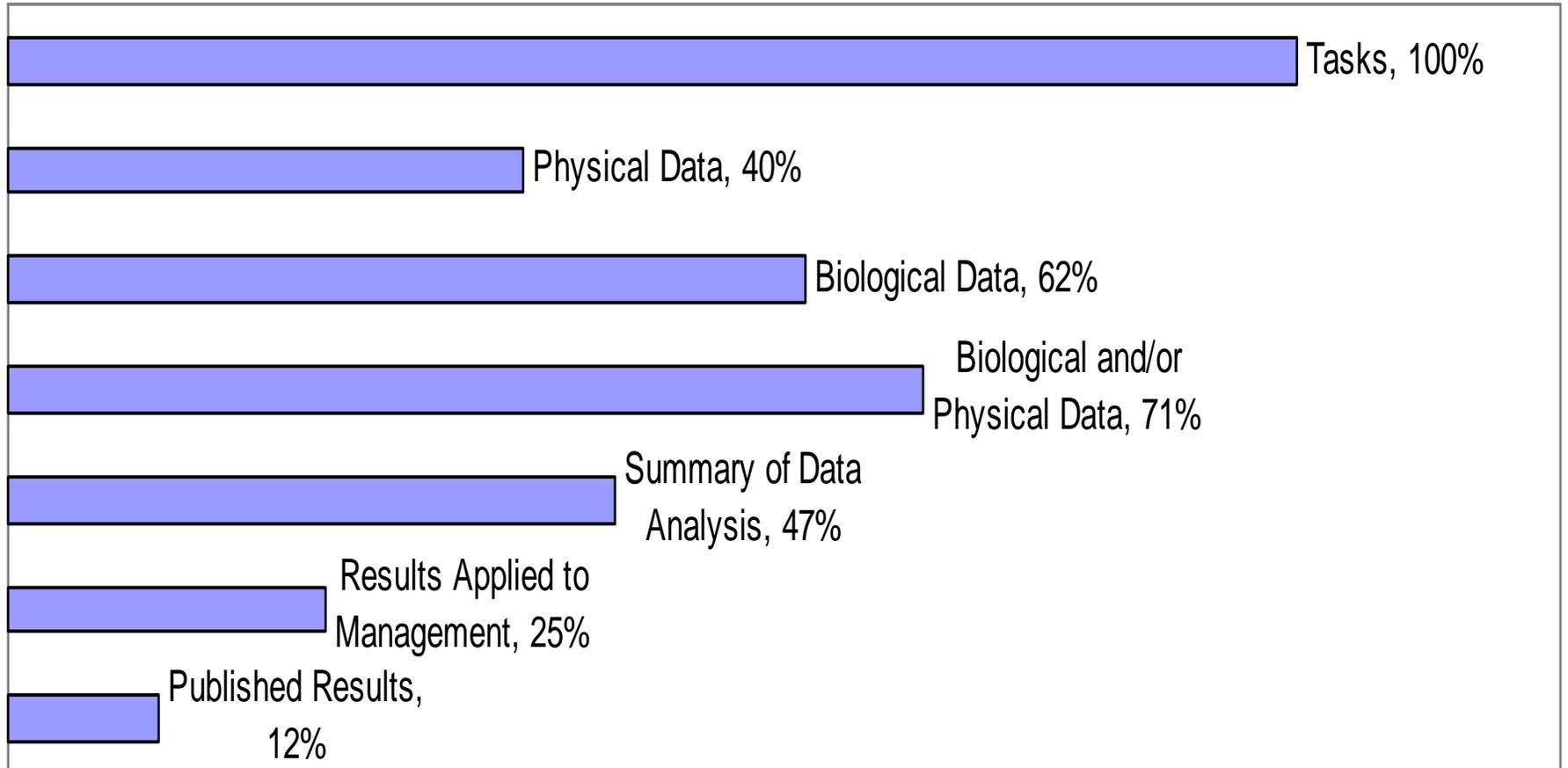
Mostly Adequate

Results Needed

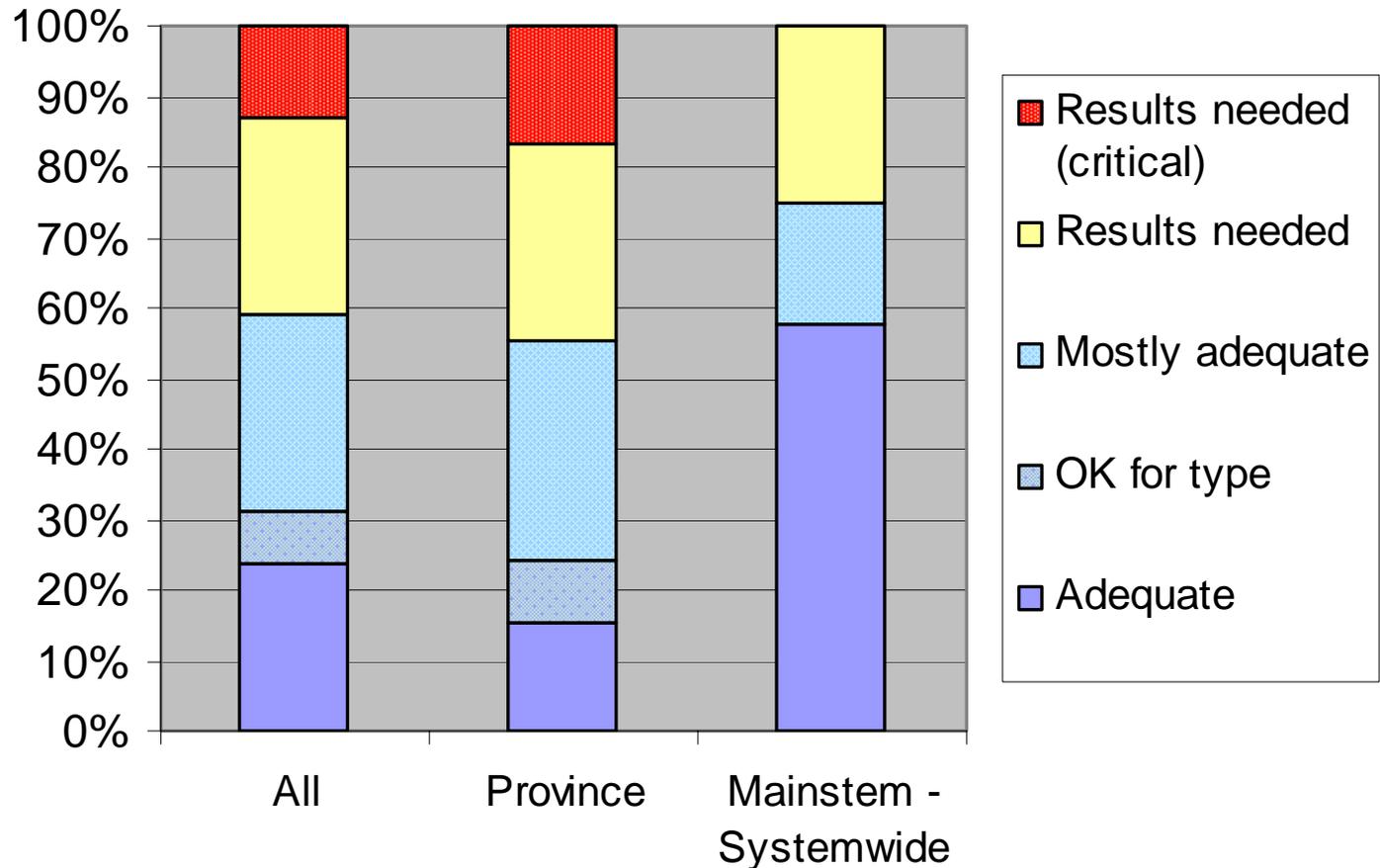
Results Needed (Critical)



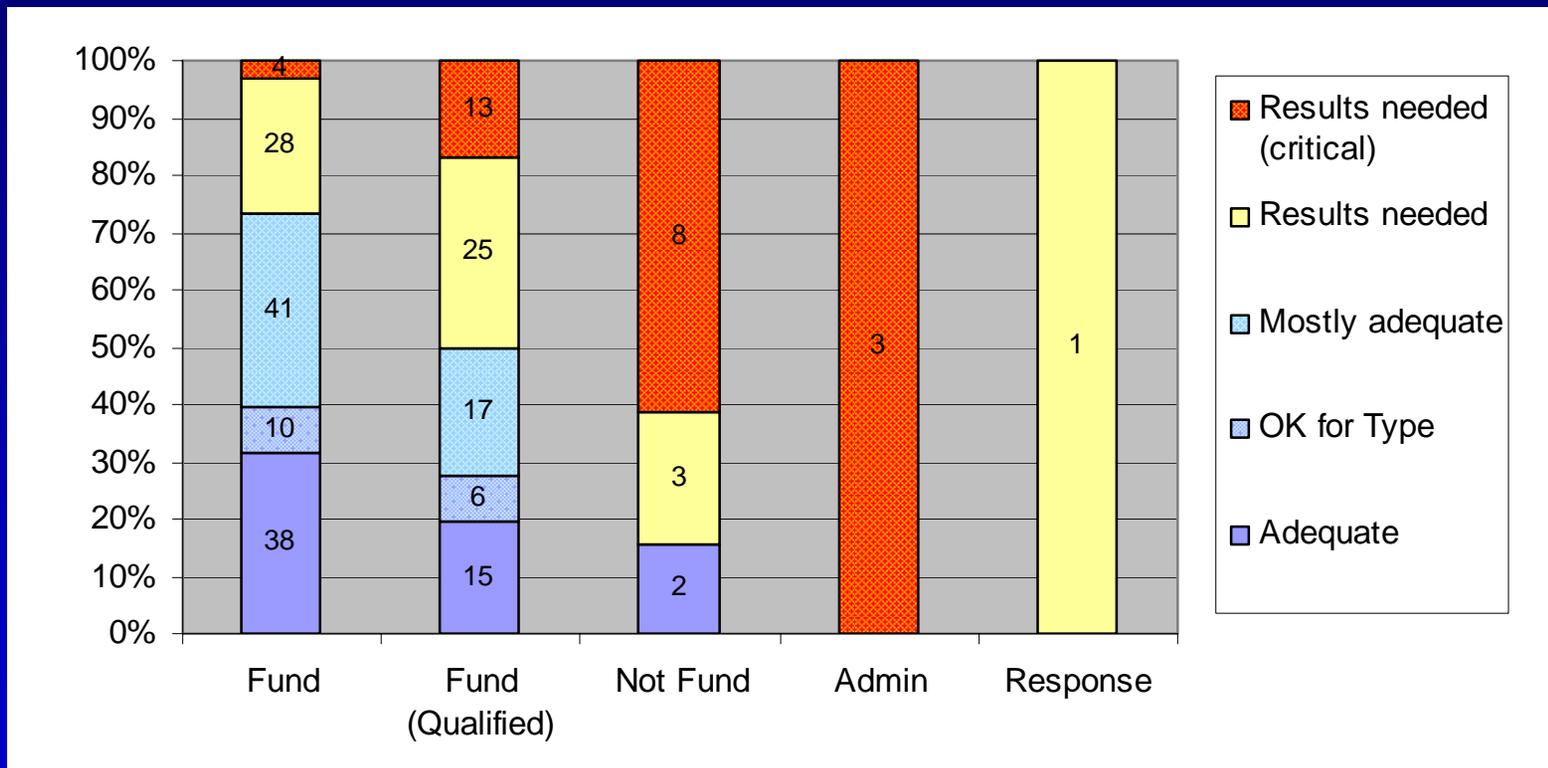
Results Reporting in FY 2007 – 09 Proposals



Adequacy of Results Reporting



Comparison of Council "Fund" Recommendations with ISRP Recommendations and Evaluation of Results Reporting



ISRP Recommendations

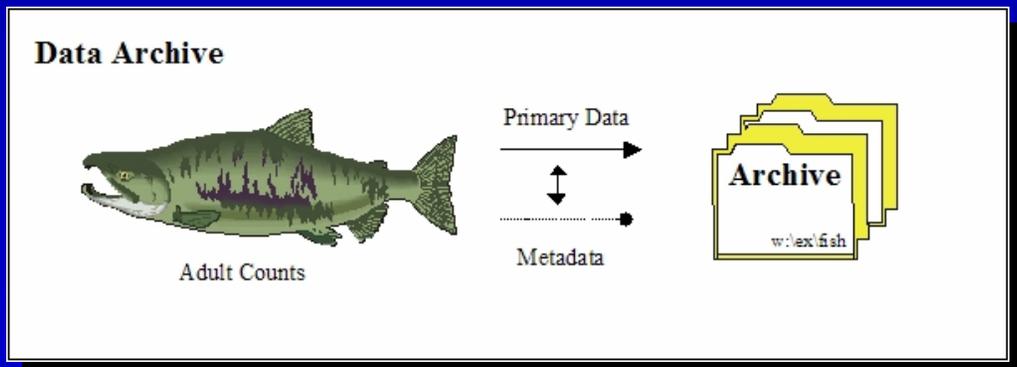
Recommendations to Improve Reporting

Continue to Emphasize Reporting Requirement in Proposals

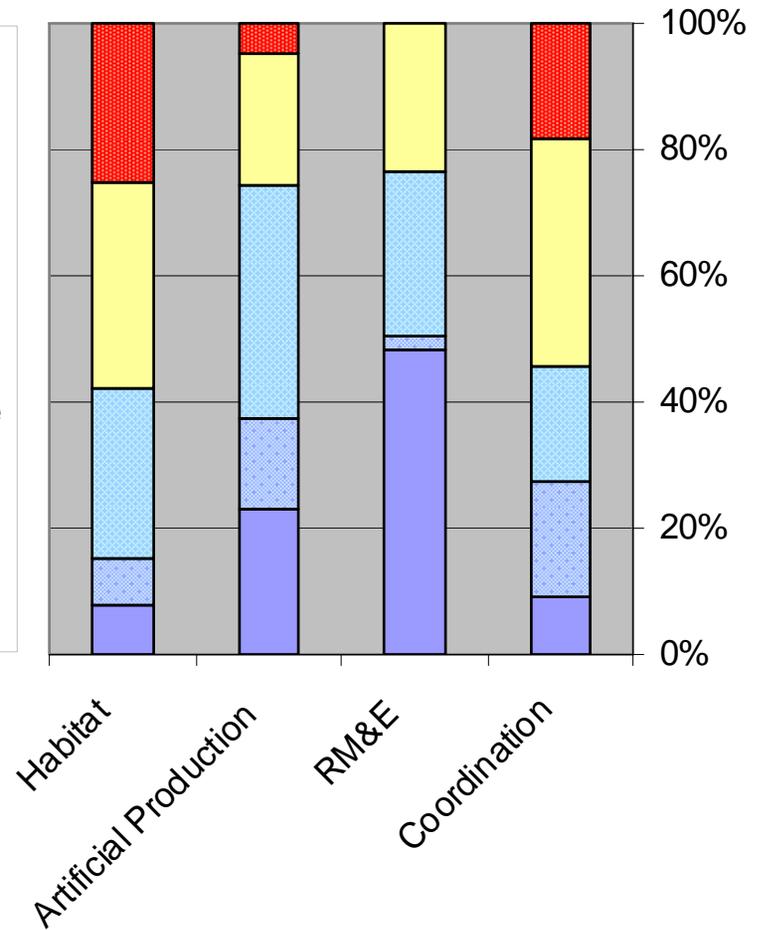
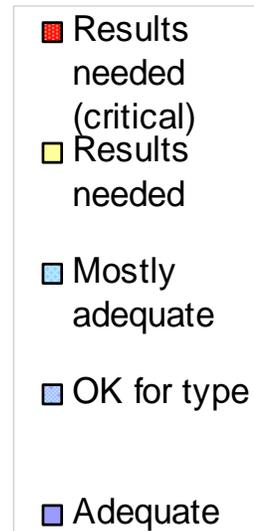
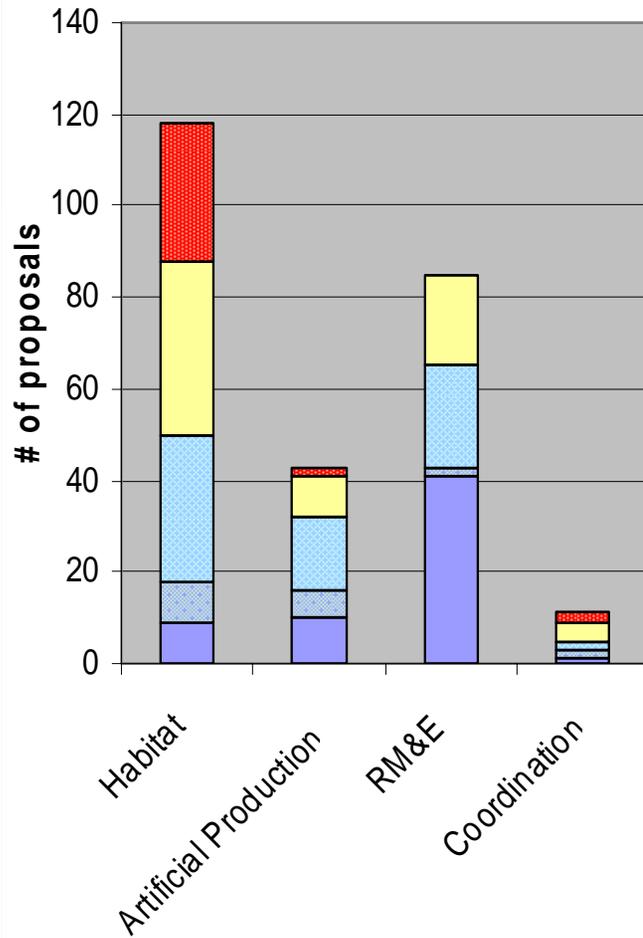
Statistical and Monitoring Design Support

Alternative Metrics

Require Identifying which Types of Monitoring Will Be Undertaken



Results Reporting by Project Type



The need for better reporting was most apparent among habitat proposals – 58% needed improvement and 25% were deemed to be in “critical” need of improvement.



Why Lower Reporting for Habitat Projects?

Ambiguous Expectations about Monitoring and Reporting (5% Cap)

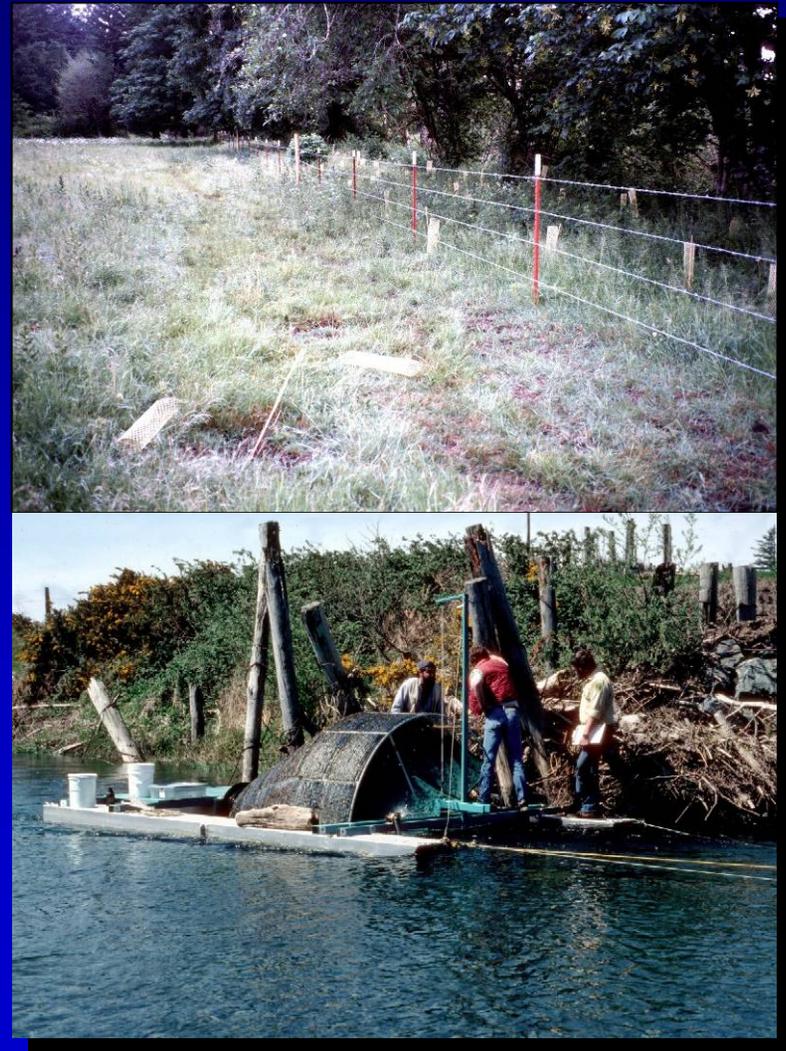
Habitat Objectives Not Stated in Measurable Physical and Biological Terms

Difficult Evaluation Caused by Natural Variability

Lack of Expertise

Lack of Incentives

Sponsors "know it will work"



Monitoring and Evaluation of Habitat Restoration



Recommendation:

Monitoring and evaluation should accompany all habitat restoration projects in order to demonstrate accountability and ecological effectiveness.



Bernhardt et al. (2005) Synthesizing U.S. river restoration efforts. *Science* 308:636-637.

surveyed over 37,000 river restoration projects in the US

"only 10% of project records indicated that any form of assessment or monitoring occurred."

"Most project records were inadequate to extract even the most rudimentary information on project actions and outcomes, ... opportunities to learn from successes and failures, and thus to improve future practice, are being lost."

Improved M&E coordination underway...

Pacific Northwest Aquatic Monitoring Partnership (PNAMP)

EPA Environmental Monitoring and Assessment Program (EMAP)

Collaborative Systemwide Monitoring and Evaluation Project (CSMEP)

State and Tribal aquatic habitat monitoring programs



The ISRP suggests a general framework for habitat restoration M&E:

Implementation Monitoring

Did we do what we said we'd do?

Effectiveness Monitoring

Is it working?



Implementation Monitoring Example

Project Type

Implementation Monitoring Recommendations

Riparian fencing; riparian vegetation management

Actual measurements of miles of fence installed or number of trees planted or acres of unwanted invasive plants controlled.

Photo-documentation at pre-determined photo points to provide a basis for changes in the condition of the fence or riparian zone over time.

Erosion control

Actual measurements of the number of acres treated and the types of control measures employed.

Photo-documentation at pre-determined photo points of the erosion control treatments applied to a site. The photos should provide a representative sampling of the entire area treated and the range of conditions to which treatments were applied.



Effectiveness monitoring study designs

- BA = before-after study design
- BACI = before-after-control-impact study design
- BACIP = before-after-control-impact-paired in time
- MBACI = multiple location-before-after-control-impact
- EPT = extensive post-treatment design



	<i>Small-scale</i>		<i>Large-scale</i>	
	Reach/local project objective	Recommended monitoring design	Watershed/population objective	Recommended monitoring design
Single projects	Improve local habitat and abundance of target species	BA, BACI, or BACIP	Improve watershed conditions and target populations	BA, BACI, or BACIP
Multiple projects	Taken together, improve local habitat and abundance or target species	EPT, MBACI, or replicated BA	Improve watershed conditions and target populations by combining projects of various types	BA, BACI, BACIP
			Improve watershed conditions and target populations by combining projects of a similar type	BA, BACI, BACIP or MBACI

Modified from Roni et al. (2005)

Effectiveness monitoring example

Project Type

Fish passage improvement

Effectiveness Monitoring Recommendations

Surveys of adult fish use of the newly accessible section of stream.

Where feasible, determine smolt production from the newly available habitat.

This will facilitate an understanding of the productivity of the upper watershed and the long-term benefits of the barrier removal project

This should only be attempted where accurate estimates of adults and smolts are possible.



But... Most of our recommendations for individual projects is focused on measuring *long-term habitat changes* that take place after a project is implemented.



Intensively Monitored Watersheds

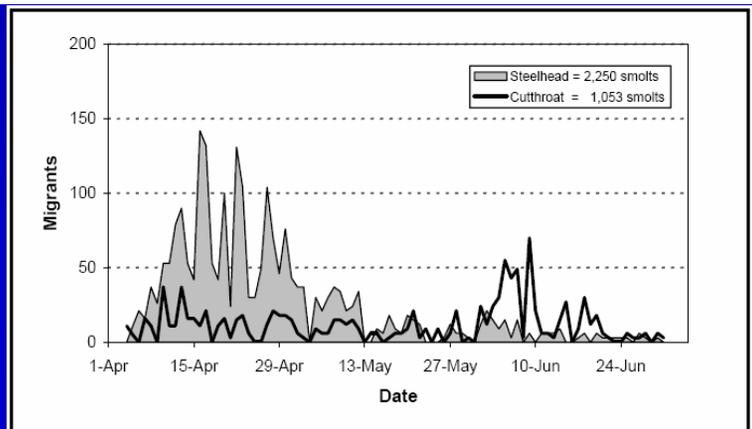
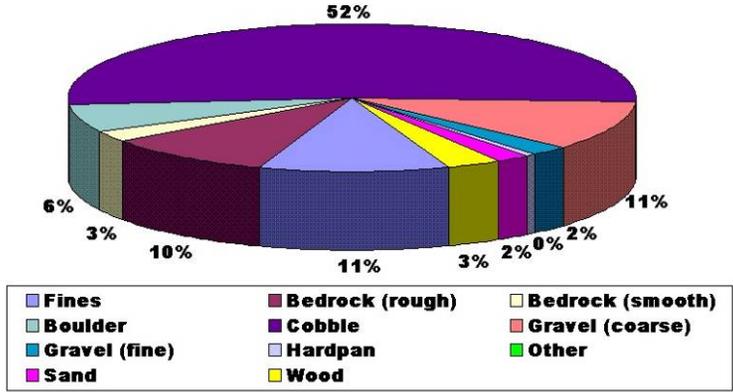
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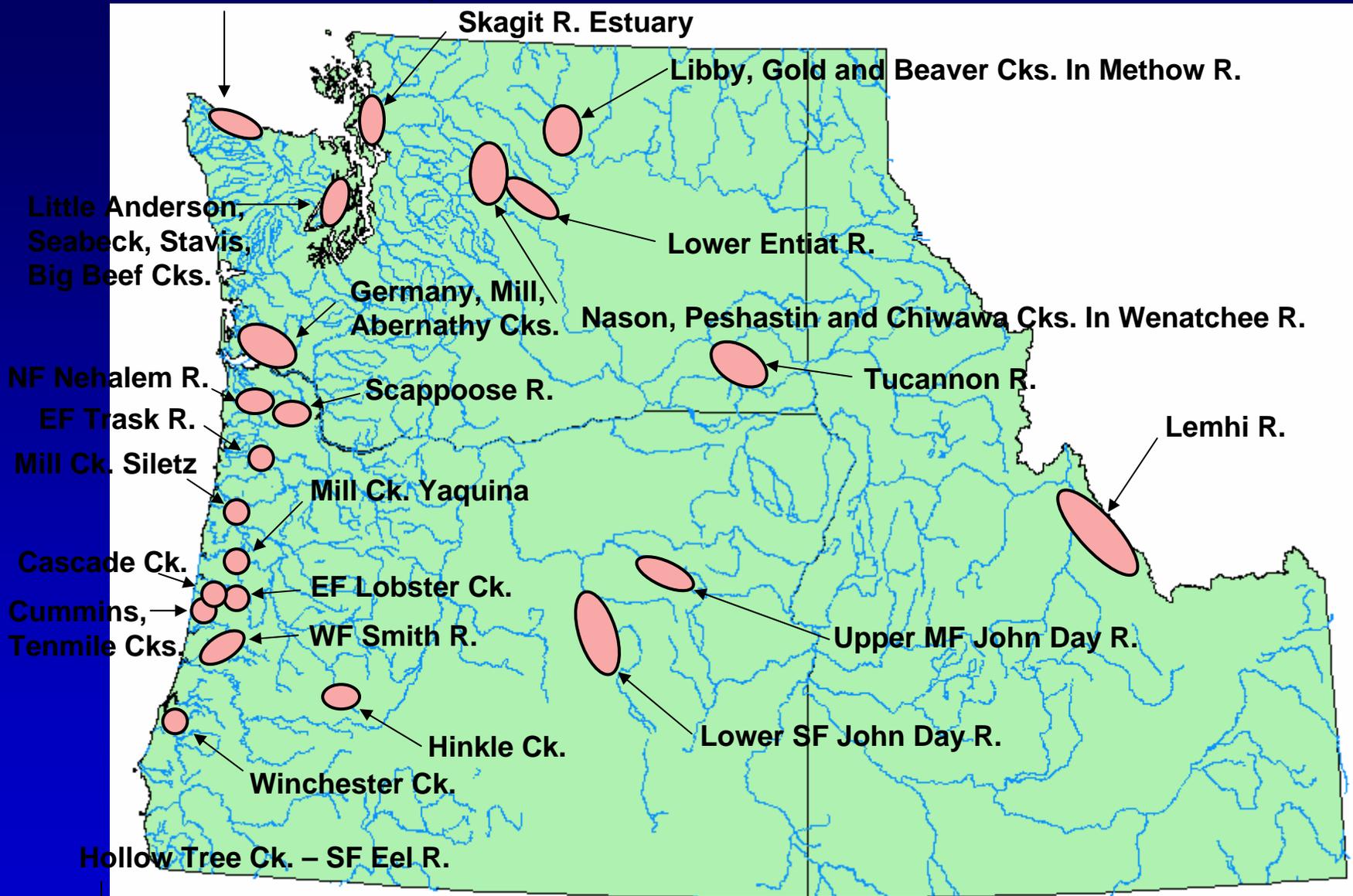
Lower Columbia IMWs:
 Salmon Recovery Funding Board
 WDFW
 WDOE
 NOAA Fisheries
 Private Industry
 Tribes



**Substrate Distribution for Abernathy Creek
 (2005 Field Season)**



E. & W. Twin, Deep Cks.



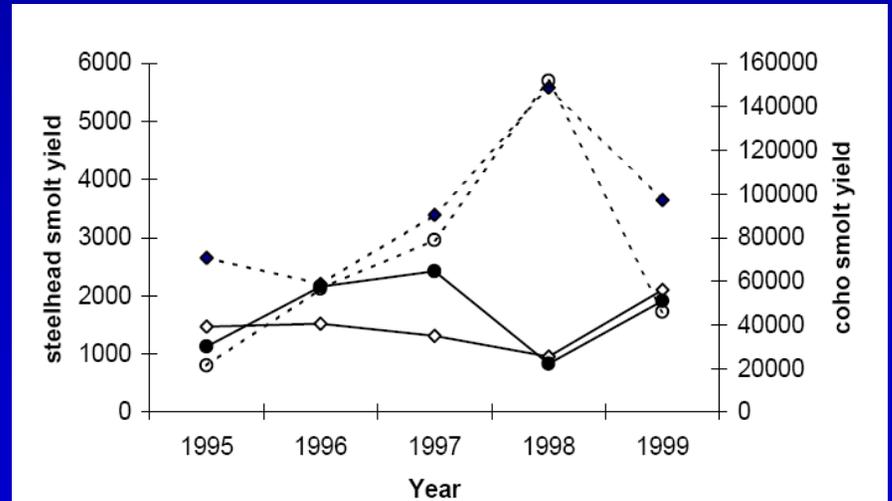


Funded by:



Watershed Restoration Program
Ministry of Environment, Lands and Parks
and Ministry of Forests

- Intensively monitored clusters of treated watersheds scattered throughout the landscape.
- Each cluster consists of one or two treatment watersheds (watersheds with different restoration approaches) paired with an untreated control.
- Study design consists of 4-6 treatment-control pairs where the treatment was post-logging stream habitat restoration.



Keogh R. (solid) vs. Waukwat R. (dashed) smolt production

Bruce Ward