

ISRP

INDEPENDENT SCIENTIFIC REVIEW PANEL

FOR THE NORTHWEST POWER AND CONSERVATION COUNCIL

PORTLAND · NWCOUNCIL.ORG/ISRP

Memorandum

March 29, 2024

To: Fish and Wildlife Committee Members, Northwest Power and Conservation Council

From: Rich Carmichael, ISRP Chair, and Erik Merrill, Independent Science Manager

Subject: ISRP Retrospective “Results” Review Discussion

Discussion Request

The ISRP requests the Fish and Wildlife Committee's discussion on two topics that the ISRP is considering for its next retrospective “results” report: 1) habitat assessment, protection, enhancement, and research, monitoring, and evaluation (RM&E) and 2) hatchery reform and progress. The ISRP intends to pursue a review of the habitat topic but includes the hatchery topic as an alternative and welcomes input on both.

The Retrospective “Results” Review Charge

In addition to reviews of projects, the 1996 Amendment to the Northwest Power Act directs the ISRP to review the “results of prior-year expenditures” based on the ISRP's project review criteria and submit its findings to the Council. In addition, the Council's 2014 Fish and Wildlife Program states that ISRP retrospective reports “should summarize major basinwide programmatic issues identified during project reviews.”

Past ISRP Results Reviews

Over the past 27 years, the ISRP has fulfilled its “results” review charge in three basic ways: project reviews, standalone retrospective reports, and reviews of topical, geographic, or multi-project synthesis reports produced by project proponents.

1. Project Reviews

A major element of the ISRP's reviews of ongoing projects is an examination of each project's reporting of past results. The project proposal form includes questions that ask for a concise summary of biological results, progress toward meeting project objectives, and the adaptive management implications of those results. The ISRP's project review comments include a specific section evaluating project's results and accomplishments. In addition to commenting on each project, the ISRP provides programmatic comments on the general sufficiency of results reporting and project changes based on those results for the full sets of projects under review. The proposed review topics regarding habitat and hatchery described in this memorandum would expand on relevant project and programmatic findings raised in the last set of categorical reviews that were completed from 2017-2022, including reviews of 29 wildlife projects ([ISRP 2017-7](#)), 48 program support and mainstem projects ([ISRP 2019-2](#)), 44 resident fish and sturgeon projects ([ISRP 2020-8](#)), and 122 anadromous fish habitat and hatchery projects ([ISRP 2022-1](#)) – 243 projects total. The proposed habitat topic review would especially explore and expand on findings from the Anadromous Fish Habitat and Hatchery Project Review.

2. ISRP Retrospective Reports

The ISRP has released four distinct, standalone "retrospective" reports. In 2005, the ISRP completed its first retrospective report, *Independent Scientific Review Panel's Retrospective Report 1997-2005* ([ISRP 2005-14](#)). The report focused on programmatic issues and observations identified in ISRP reviews dating back to the ISRP's first report in 1997. The *ISRP 2006 Retrospective Report* ([ISRP 2007-1](#)) focused on improving results reporting for Fish and Wildlife Program projects. The ISRP's *Retrospective Report 2007: Adaptive Management in the Columbia River Basin* ([ISRP 2008-4](#)) focused on how projects are changing their objectives, strategies, and methods based on learning from the results of their actions. The ISRP's *Retrospective Report 2011* ([ISRP 2011-25](#)) focused on sets of projects in three major topical areas: 1) artificial production; 2) fish passage through mainstem dams, the river, and reservoirs; and 3) habitat restoration monitoring. The ISRP found that monitoring and evaluation had improved in all three major areas. Nonetheless, the ISRP stated that lack of a comprehensive analysis of biological objective achievements for hatchery and habitat efforts impeded the understanding of program effectiveness. The report proposed for 2024 would be the ISRP's fifth standalone retrospective report and would build on the results and lessons learned from the previous four reports.

3. ISRP Review of “Retrospective” or “Synthesis” Reports drafted by Project Proponents

The ISRP has reviewed many “retrospective” or “synthesis” reports produced by proponents of long-term, ongoing projects that evaluate their projects cumulative results and accomplishments. Examples include reviews of ocean, estuary, sturgeon, Idaho Supplementation Studies, and lamprey synthesis reports. The ISRP has found these syntheses to be invaluable and continues to emphasize that syntheses by project proponents should be an integral part of the Fish and Wildlife Program as a vehicle for compiling and synthesizing complex information that can be used to inform dialogue and progress toward achieving overarching Program goals. The ISRP’s proposed habitat review would consider the Grande Ronde Model Watershed habitat restoration effectiveness synthesis report ([ISRP 2022-6](#)), final summary reports for the Fish and Wildlife Program’s Action Effectiveness Monitoring project ([AEM 2023](#)) and the Integrated Status and Effectiveness Monitoring Program and Columbia Habitat Monitoring Program (ISEMP/CHaMP), and other relevant synthesis reports, annual reports, and journal articles produced by project proponents.

Topics for an ISRP 2024 Retrospective Review – Habitat and Hatchery

Following the completion of the last set of 2017-2022 Category Reviews, the ISRP identified habitat and hatchery progress and challenges as programmatic topics that could benefit from further evaluation and synthesis through an ISRP retrospective report. Brief summaries of the ISRP’s proposed approaches to reviewing the habitat and hatchery topics are provided below followed by full descriptions in the appendices. These review descriptions reflect feedback from the full ISRP and from the Council’s central and state fish and wildlife staff. Based on ISRP and Council staff feedback, the ISRP believes it would be best to review one of the topics at a time and the habitat review would be better aligned with the Council staff’s Program performance efforts and planning for the next project review cycle. A hatchery review would likely be more effective if postponed until the Council’s hatchery program performance tracking efforts is further developed and completion of the ISRP’s 2025 review of the Lower Snake River Compensation Plan’s steelhead program, and possibly, the subsequent fall Chinook review.

The ISRP recognizes that retrospective reports need to be conducted in the context of other concurrent efforts that track results of the Fish and Wildlife Program, such as the Council’s Program performance tracking effort and Bonneville Power Administration’s project tracking through Pisces and Taurus (CBfish.org). Moreover, the ISRP understands that retrospective reports should be scoped to best inform Council decision-making processes such as project reviews or program amendments. In that spirit, the ISRP requested and incorporated feedback

from Council staff and now seeks discussion with the Fish and Wildlife Committee and welcomes any feedback.

1. *Habitat Retrospective: Review and synthesis of advancements and challenges in Columbia River Basin Fish and Wildlife Program habitat protection and restoration projects (see Appendix 1)*

Habitat protection and restoration projects have been an important focus of the Council's Fish and Wildlife Program since it began, and the magnitude and geographic scope of habitat restoration efforts have expanded considerably through time. The expansion has resulted from increased recognition of the importance of high-quality tributary habitat and associated healthy natural processes for recovery and persistence of salmonid and other native fish and wildlife populations in the Columbia River Basin. Several synthesis reports and guidance documents have recently been completed that provide guidance for planning, implementation, and RM&E of habitat restoration projects. However, there remains a need for additional synthesis and summary of improved approaches and remaining challenges for implementation and RM&E of Program-funded habitat protection and restoration projects. The scope of the review will focus on the advances in habitat restoration approaches and RM&E and describe characteristics and elements of exemplary projects with examples. Primary audiences for the report include Council members and staff, habitat managers, habitat evaluation scientists, restoration practitioners, Fish and Wildlife Program implementers, and the general science community.

2. *Hatchery Retrospective: Review and synthesis of adaptive changes in the management, evaluation, and performance of ISRP-reviewed Fish and Wildlife Program and Lower Snake River Compensation Plan artificial production programs in the Columbia River Basin (see Appendix 2)*

Columbia River Basin hatchery programs are primarily federally funded through legislation or the Fish and Wildlife Program and are established as mitigation for fish losses due to habitat degradation and the construction and operation of hydropower dams. These mitigation hatchery programs are managed to meet multiple management and cultural objectives including fisheries, conservation, and reintroduction. Significant hatchery reform and research efforts have occurred over the past two decades. While artificial production approaches have been reformed and expanded and research completed, it has been almost a decade since the ISRP or ISAB has evaluated and reported on the cumulative results or synthesis of those actions, reviews, and lessons learned. A synthesis of the evolving hatchery management objectives and hatchery operational procedures, and an assessment of the monitoring and evaluation approaches and performance results for Fish and Wildlife Program and LSRCP hatcheries would

be beneficial. Such a review would inform decision makers, managers, and the general science community. The report could be used to demonstrate the ability of hatchery programs to adapt to changing management priorities and improve operations accordingly.

Appendix 1. ISRP Report Prospectus – Habitat Retrospective

Review and synthesis of advancements and challenges in Columbia River Basin Fish and Wildlife Program habitat protection and restoration projects

Audience: Northwest Power and Conservation Council members and staff, habitat managers, habitat evaluation scientists, restoration practitioners, Fish and Wildlife Program implementers, and the general science community.

Background: Habitat protection and restoration projects have been an important focus of the Council's Fish and Wildlife Program since it began, and the magnitude and geographic scope of habitat restoration efforts have expanded considerably through time. The expansion has resulted from increased recognition of the importance of high-quality tributary habitat and associated healthy natural processes for recovery and persistence of salmonid and other native fish populations in the Columbia River Basin. Habitat conservation and restoration have become a fundamental part of efforts to achieve the Fish and Wildlife Program's goals and offset the continued impacts of the hydrosystem and ongoing habitat change. Habitat restoration projects for resident and anadromous fish are underway in all major subbasins in the Columbia River Basin and represent a key component of not only the Fish and Wildlife Program and its subbasin plans but all ESA recovery and other management plans. Numerous ESA Recovery and Federal, State, and Tribal management plans have been adopted that provide broad strategic guidance for habitat conservation, protection, and restoration priorities.

New technologies and approaches have improved the planning, design, implementation, effectiveness, and research, monitoring, and evaluation (RM&E) of restoration projects. Planning processes now often include consideration of extensive information from watershed assessments, hydrologic models, life-history traits, food webs, population dynamics, limiting factors and threats, life-stage specific capacity, habitat-fish survival relationships, and life-cycle models. This information has become critical in the planning phase to identify high priority reaches and restoration approaches. Several types of multi-disciplinary processes, including structured decision processes, are used to develop priorities, strategies, and reach-specific actions.

There has been increased recognition of the need to restore natural processes, functioning floodplains, riparian vegetation, and instream habitat complexity. This recognition has changed restoration strategies and approaches over time. In response to the ISRP reviews, projects have significantly improved in the rigor and effectiveness of goals and objectives that guide planning

and implementation of habitat restoration. The increased use of specific, measurable, achievable, relevant, and time-bound (SMART) objectives has strengthened the projects and provided better scientific guidance. In addition to the adaptive changes in planning, design, and implementation, there have been significant advances in research, monitoring, and evaluation. Implementation of intensively monitored watersheds, the Integrated Status and Effectiveness Monitoring Program and Columbia Habitat Monitoring Program (ISEMP/CHAMP), BPA Project Action Effectiveness Monitoring Program (AEM), Oregon Plan Habitat Monitoring protocols, and other assessment approaches, along with full life-cycle survival and production models, have improved the foundation of information for evaluating responses.

Over the past few decades, the ISRP has evaluated many habitat restoration projects as part of the Council's project review process. Habitat restoration approaches and research, monitoring, and evaluation have been highlighted in a number of programmatic issues. However, the strengths of various approaches have rarely been highlighted and compared, nor have the weaknesses been fully acknowledged or adequately addressed. In the most recent Anadromous Fish Habitat and Hatchery Project Review (AFHH, [ISRP 2022-1](#)), the ISRP evaluated provisions for research, monitoring, and evaluation in each habitat protection and restoration project. In the preliminary review, the ISRP concluded that for about 50% of the habitat protection and restoration projects, significant questions were raised about the RM&E elements described in the proposals. For these proposals, the ISRP highlighted the lack of clear articulation of what was being monitored, what monitoring information was being provided by other supporting projects, and how information from supporting projects was being shared and used in habitat response evaluation and adaptive decision processes. It was notable that available funding constrained what monitoring a project might pursue, and the proponents expressed widely differing approaches and perspectives on the types and levels of monitoring needed to evaluate restoration actions. Nevertheless, there are some exemplary programs where collaboration among projects and management entities has resulted in effective integrated approaches to evaluate habitat conditions, limiting factors, status and trends, and restoration effectiveness, and to provide data for life-cycle models ([ISRP 2022-1](#)).

Federal agencies and U.S. Pacific Northwest states and tribes developed and recently published a strategy for Columbia Basin tributary habitat research, monitoring, and evaluation ([Habitat RM&E Strategy 2022](#)) to guide the assessment and documentation of outcomes and benefits of tributary habitat protection and restoration projects. The strategy has a broad set of desired policy outcomes and regional interests, and it poses five key management questions related to priority ecological concerns; implementation; environmental and regulatory compliance; effectiveness in addressing limiting factors; and benefits to target populations. The strategy

framework includes a monitoring cycle that describes how RM&E information should be considered in the project planning and implementation phases. The RM&E strategy, if fully implemented in the future, could address some elements raised in previous ISRP programmatic issues and specific project conditions identified in past reviews. It will be important to assess to what extent the RM&E Strategy will address past programmatic issues and project conditions ([ISRP 2022-1](#)) and provide an effective and useful framework for future habitat restoration RM&E.

Need for a review and synthesis: Habitat protection and restoration planning, design, implementation, and effectiveness monitoring have advanced substantially, and restoration efforts have expanded in the Columbia Basin over the past four decades under the Council's Program. Several synthesis reports and guidance documents have recently been completed that provide guidance for planning, implementation, and RM&E of habitat restoration projects. However, there remains a need for additional synthesis and summary of improved approaches and remaining challenges for implementation and RM&E of Program-funded habitat protection and restoration projects. The scope of the review will focus on the advances in habitat restoration approaches and RM&E, evaluate the extent to which the RM&E Strategy will address past ISRP issues, and describe characteristics and elements of exemplary projects with examples.

Goals and Objectives:

Goals – Inform decision makers, managers, and the general science community of advances and challenges in habitat restoration approaches and RM&E of Fish and Wildlife Program habitat protection and restoration projects. Demonstrate adaptive management changes, illustrate the characteristics of exemplary projects, and improve the information basis to guide future habitat restoration and evaluation efforts.

Objectives –

1. Describe the adaptive management changes that have occurred in habitat assessment, restoration, and evaluation processes. How can the Program best capitalize on the guidance provided in the Habitat RM&E Strategy and other guidance documents?
2. Assess and describe the advances and challenges in project implementation and evaluation directed towards restoring natural processes, watershed-scale restoration, floodplain restoration and engagement, and habitat complexity.

3. Identify elements and characteristics of exemplary habitat restoration and evaluation programs and provide examples of exemplary projects, which although site-specific have attributes that could apply at broader scales, and
4. Develop recommendations to improve habitat restoration and evaluation approaches, including study designs and effectiveness metrics, for use in achieving Fish and Wildlife Program and recovery objectives.

Approach: Program summaries, project proposals, reports, literature produced from Fish and Wildlife projects, the Habitat RM&E Strategy, and ISRP reviews and relevant ISAB reports will serve as the primary information sources for the retrospective report. For example, we will examine the approaches, findings, and guidance from, among others:

- ISRP AFHH project review ([ISRP 2022-1](#))
- [Habitat RM&E Strategy](#)
- Action Effectiveness Monitoring Project ([AEM, 2023 Final Report](#))
- ISEMP/CHaMP ([2018 Final Report](#))
- ISAB Review of Spring Chinook in the Upper Columbia River ([ISAB 2018-1](#), see pages 107-143)
- ISAB Landscape-scale Restoration Report ([ISAB 2011-4](#))
- a synthesis paper by the Puget Sound Partnership's science advisory group ([Bilby et al. 2023](#))
- and especially exemplary habitat restoration and evaluation projects identified in the AFHH and other Category reviews.

Further consideration is needed to better define the scope of the report. We will need to develop a specific framework and set of questions to guide and support the synthesis and consider the broad diversity of restoration approaches, watershed conditions, geographic locations, and focal species.

Appendix 2. ISRP Report Prospectus – Hatchery Retrospective

Review and synthesis of adaptive changes in the management, evaluation, and performance of ISRP-reviewed Fish and Wildlife Program and Lower Snake River Compensation Plan artificial production programs in the Columbia River Basin

Audience: NPCC members and staff, hatchery managers, hatchery evaluation scientists, Fish and Wildlife Program implementers, and the general science community.

Background: Columbia River Basin hatchery programs are primarily federally funded through legislation or the Fish and Wildlife Program and established as mitigation for fish losses due to habitat degradation and the construction and operation of hydropower dams. These mitigation hatchery programs are managed to meet multiple management and cultural objectives including fisheries, conservation, and reintroduction. Significant hatchery reform and research efforts have occurred over the past two decades including the Council’s Artificial Production Review and Evaluation (APRE, 2002-2005), NOAA Fisheries’ Hatchery and Genetics Management Plans (HGMPs, 2000-ongoing for new production), ISRP and Independent Scientific Advisory Board reviews of salmon and steelhead supplementation (ISAB, 2003-2005), the basinwide Ad Hoc Supplementation Monitoring and Evaluation Workshops (2006-2007), and NOAA’s Congressionally directed Hatchery Scientific Review Group (HSRG, 2005-2015).¹ In response to recommendations from these review and reform efforts, new facilities have been constructed and changes in broodstock sources, adult collection methods, spawning protocols, and rearing and release strategies have been implemented to address various performance issues and to better achieve supplementation and conservation objectives.

New technologies and approaches have been developed to improve the effectiveness, precision, and accuracy of estimates for key hatchery performance metrics. There has been considerable effort to standardize metrics and methods across hatchery programs. The application of Parentage-Based Tagging (PBT) Genetic Stock Identification (GSI), Relative Reproductive Success (RRS) studies, and expanded use of PIT tags and in-river tracking has improved monitoring results for many hatchery programs.

Over the past two decades, the ISRP has conducted many reviews of the Council’s Program-funded and Lower Snake River Compensation Plan (LSRCP) hatchery programs, including

¹ See the Council’s [Hatchery Reviews and Reforms webpage](#) for summaries and links to the various review efforts.

comprehensive reviews of multi-project hatchery programs, individual projects, and Council Step Reviews of hatchery master plans for new production. These reviews included hatchery programs for multiple anadromous salmonid species with diverse management objectives including harvest augmentation, supplementation, and conservation. Fish and Wildlife Program artificial production activities have expanded beyond primarily salmonid production to Pacific lamprey, native mussels, burbot, and white sturgeon production and translocation. In addition, significant research, monitoring and evaluation have been undertaken, and in 2015-2016, the ISRP and ISAB considered the extent to which critical management questions were addressed by this research and what questions and critical uncertainties remained.

Need for a review and synthesis: While artificial production approaches have been reformed and expanded and research completed, it has been almost a decade since the ISRP or ISAB has evaluated and reported on the cumulative results or synthesis of those actions, reviews, and lessons learned. A synthesis of the evolving hatchery management objectives and hatchery operational procedures, and an assessment of the monitoring and evaluation approaches and performance results for Fish and Wildlife Program and LSRCP hatcheries would be beneficial and timely.

Goals and Objectives:

Goals – Inform decision makers, managers, and the general science community of the evolving management objectives, adaptive management changes, and performance of Fish and Wildlife Program and LSRCP artificial production programs in the Columbia River Basin. The report could be used to demonstrate the ability of hatchery programs to adapt to changing management priorities and improve operations accordingly. Results will improve the information base for future hatchery management and reform decisions.

Objectives –

1. Characterize changes in management objectives.
2. Describe the adaptive management changes (hatchery reform) that have occurred in management objectives, hatchery management, and operational protocols.
3. Assess and describe the advancement in technology and methodology used to estimate key hatchery performance metrics.
4. Identify elements and characteristics of exemplary hatchery programs and associated RM&E and,

5. Develop recommendations to improve the performance of artificial propagation programs in achieving Fish and Wildlife Program goals and objectives.

Approach: Program summaries, proposals, annual reports, and literature produced by Fish and Wildlife Program projects, along with ISRP reviews and relevant ISAB reports, will serve as the primary information sources for the retrospective report. To limit the scope and time required, the review could focus on recent literature that comprehensively examines artificial production. We will need to develop a specific framework and set of questions to guide and support the assessment process and allow for consideration of the diversity of management objectives (e.g., fisheries, supplementation and/or reintroduction, native fish conservation), species, and possibly geographic location. A key focus will be to assess the performance in achieving objectives and how performance has varied over time.

ISRP 2024 Retrospective

“Results” Review Topics

Habitat and Hatchery

April 9, 2024

Richard Carmichael, ISRP Chair
Erik Merrill, Independent Science Manager



ISRP

INDEPENDENT
SCIENTIFIC
REVIEW PANEL

ISRP Review Responsibilities

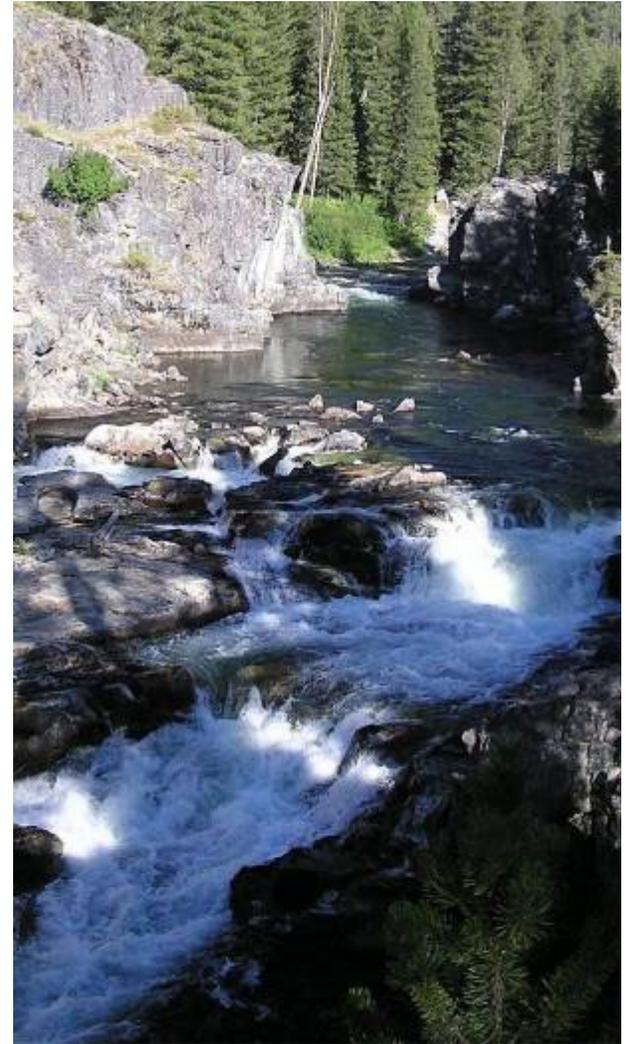
1. Projects proposed for Bonneville funding to implement the Council's F&W Program
2. Projects funded through Bonneville's reimbursable program
3. Retrospective review of project results



Retrospective Review

Review the results of prior year expenditures:

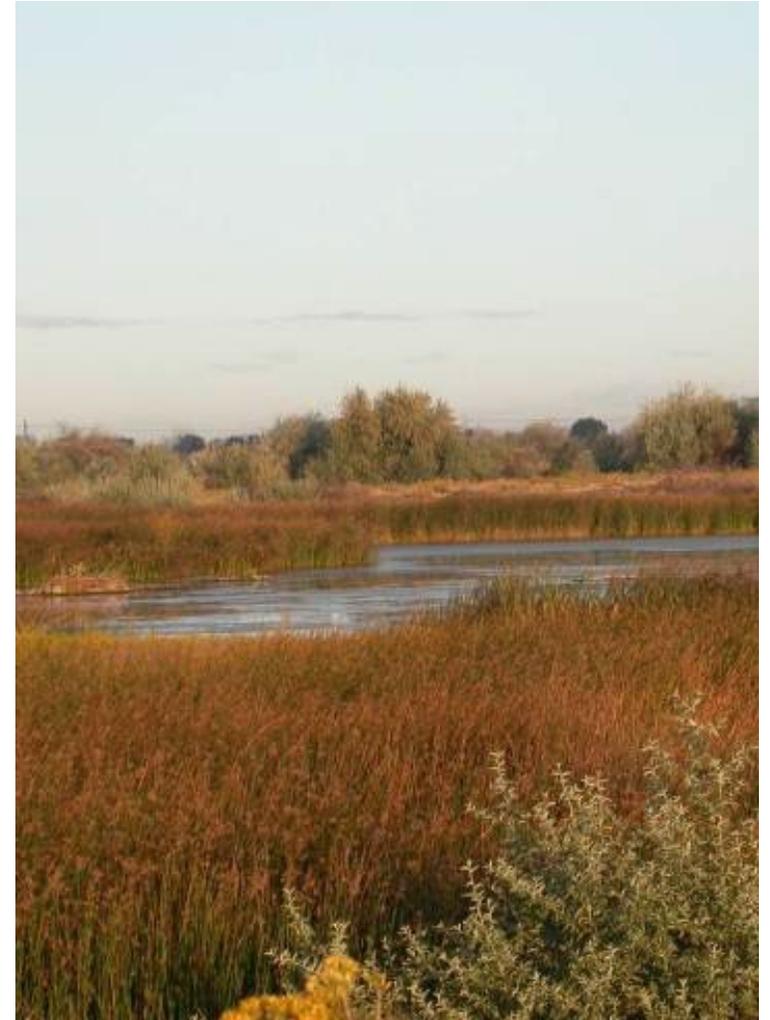
- Focus on measurable benefits to fish and wildlife
- Provide biological information for the Council's evaluation of success in meeting program objectives
- Summarize major basinwide programmatic issues identified during project reviews



Dagger Falls, Middle Fork Salmon

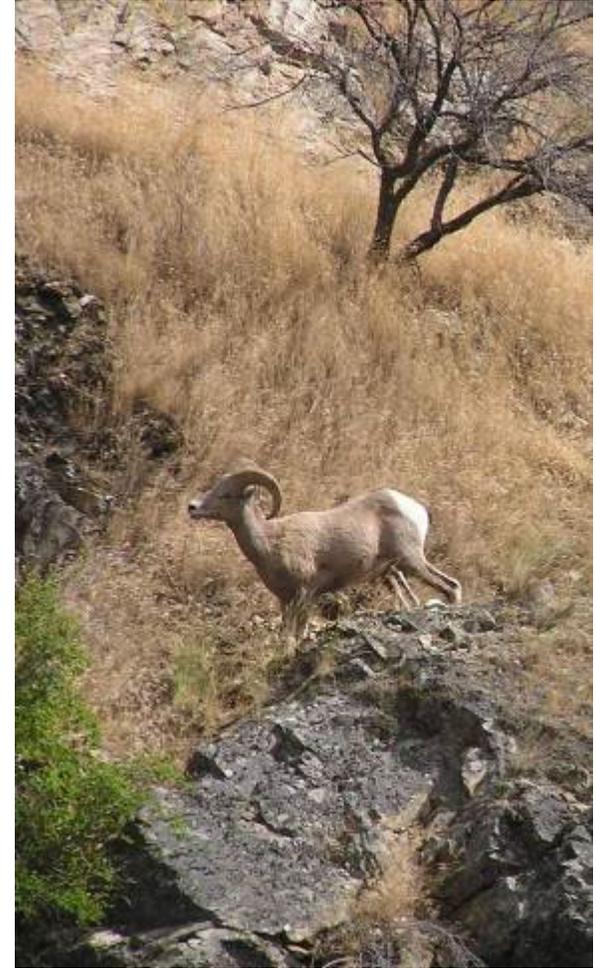
Retrospective Review Approaches

1. Evaluate results reported in proposals
 - Programmatic comments accompany multi-project reviews
2. Formal “Retrospective” reviews (four to date)
3. Review synthesis reports from project proponents (LSRCP, CSS, Ocean, Grande Ronde) – preferred approach



Standalone ISRP Retrospective Reviews

- 1997 – 2005: Programmatic Themes
- 2006: Analysis of results reporting in Fiscal Year 2007/09 Proposals
- 2007: Adaptive management actions
- 2011: Expanded summary of results from review of hatchery, habitat, and passage RM&E projects



Bighorn Sheep, Middle Fork Salmon

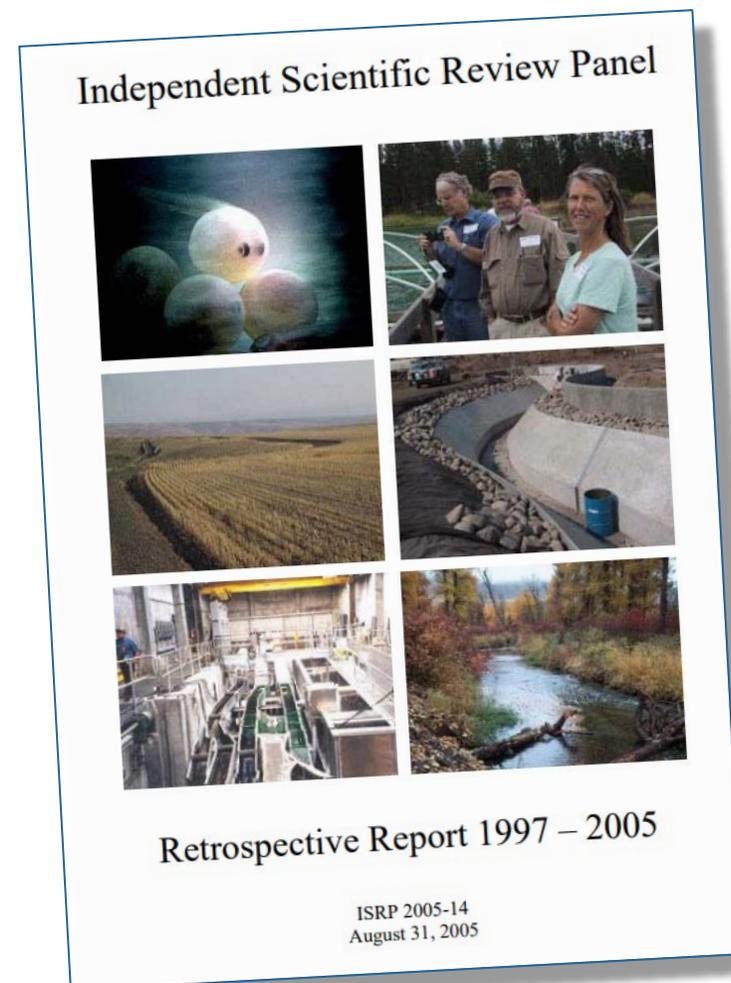
ISRP Retrospective 1997-2005

A summary of ISRP activities from 1997 to 2005

- Evaluates the cumulative effect of ISRP reviews on program accountability, project effectiveness, and scientific soundness

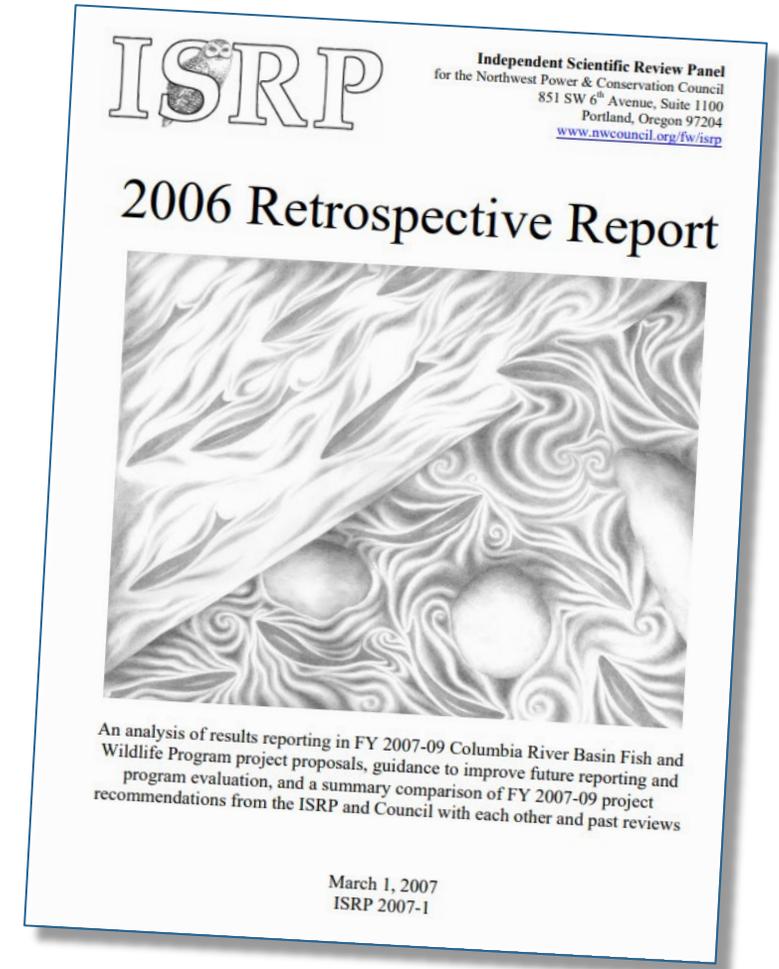
Two parts:

- ISRP review process and results
 - Lessons from an evolving process
- Major programmatic themes
 - RM&E, mainstem issues, tributary habitat, artificial production, wildlife, ocean and estuary



ISRP 2006 Retrospective

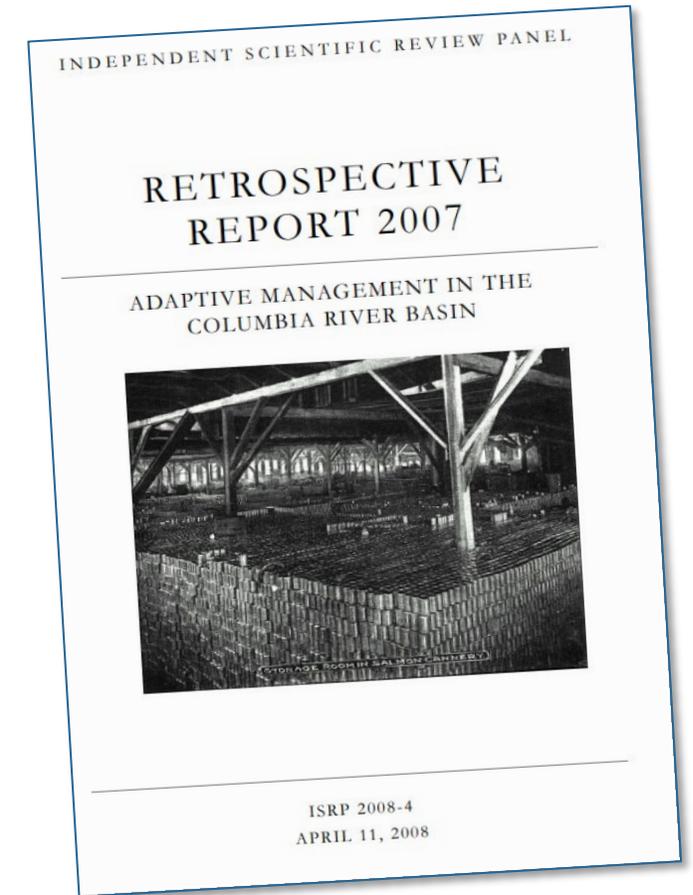
- Results reporting in FY 2007-09 proposals
 - Improvement needed in reporting and M&E
- M&E guidance to improve habitat restoration results reporting
- Summary comparison of FY 2007-09 ISRP Review with Council Recommendations and the 2001 – 03 Provincial Review



ISRP 2007 Retrospective: Adaptive Management in the Columbia River Basin

How are projects changing based on learning from the results of project actions?

- Adaptive Management
- Using Project Results
 - Fish production
 - Aquatic habitat
 - Wildlife

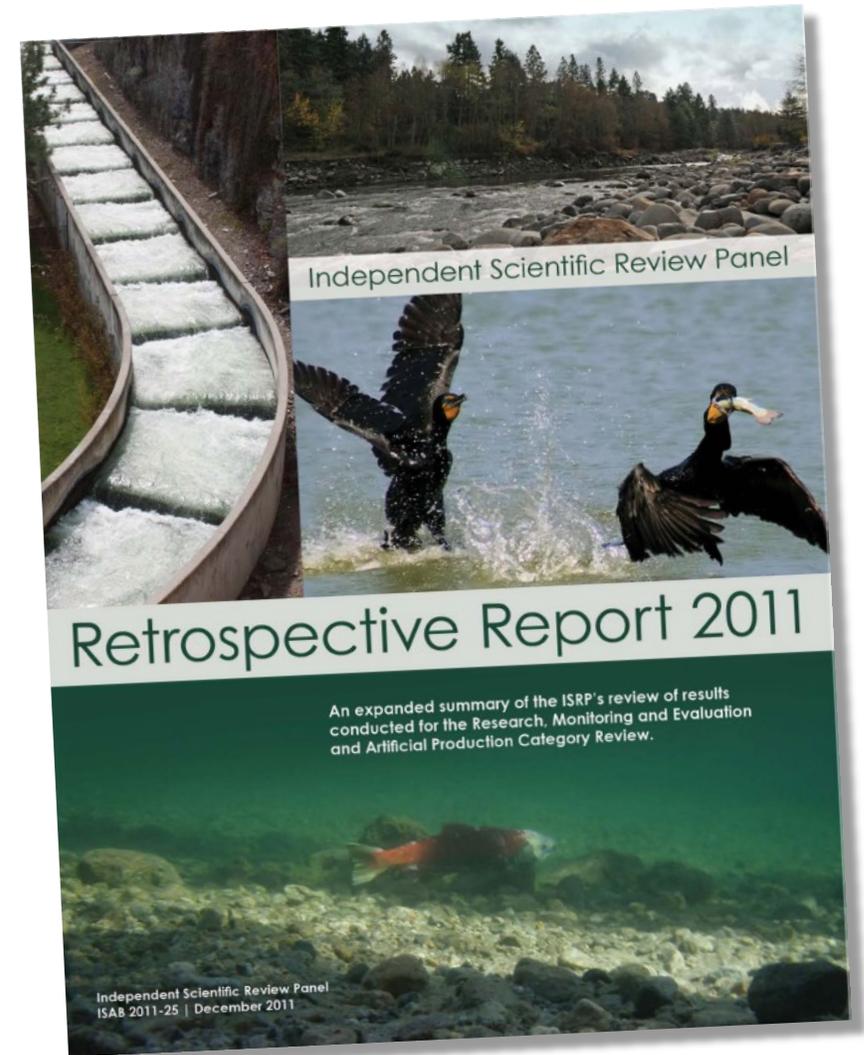


2011 ISRP Retrospective

Focused on sets of projects in three major topical areas:

1. Artificial production
2. Fish passage through mainstem dams, the river, and reservoirs
3. Habitat restoration monitoring

M&E improved in all areas, but comprehensive analysis of biological achievements of habitat and hatchery effort needed



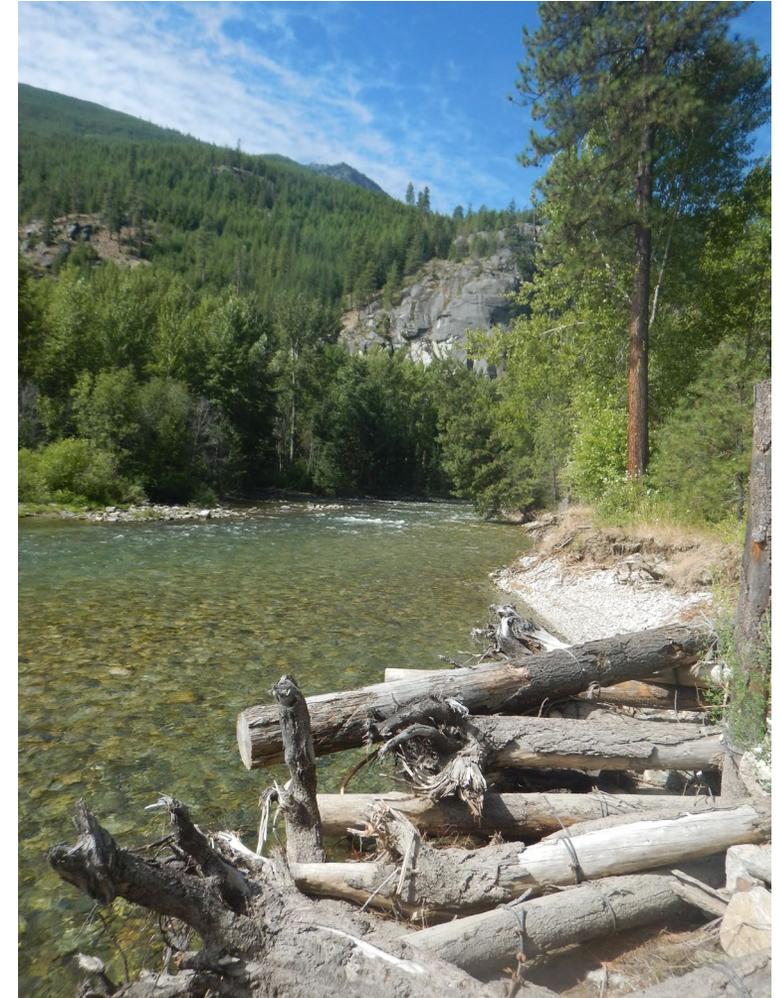
2024 Retrospective Topics

- 1. Habitat Retrospective:** Review and synthesis of advancements and challenges in Columbia River Basin Fish and Wildlife Program habitat protection and restoration projects
- 2. Hatchery Retrospective:** Review and synthesis of adaptive changes in the management, evaluation, and performance of ISRP-reviewed Fish and Wildlife Program and Lower Snake River Compensation Plan artificial production programs in the Columbia River Basin



2024 Retrospective Topics - Habitat

- Background
 - Magnitude and scope of habitat restoration have expanded significantly over time
 - Increased recognition of the importance and emphasis on restoring natural processes, functioning floodplains, riparian conditions, and habitat complexity
 - New approaches and technology have improved planning, design, implementation, effectiveness, and RM&E
 - Habitat restoration approaches and RM&E are highlighted in ISRP reviews – programmatic issues and project conditions
 - Federal, Tribal, and State agencies recently published a Habitat RM&E Strategy to guide future efforts



2024 Retrospective Topics - Habitat

- Need and goal for review and synthesis
 - Protection and restoration planning, design, implementation, and RM&E have improved significantly over time
 - Several relevant synthesis reports and guidance documents have recently been completed
 - Synthesis and summary of improved approaches and remaining challenges of Program projects, including describing elements and characteristics of exemplary projects will be informative
- Goal
 - Inform decision makers, managers, and the general science community of the advances and challenges in habitat restoration approaches and RM&E of Program projects



2024 Retrospective Topics - Habitat

- Objectives
 - Assess and describe adaptive management changes and improvements as well as remaining challenges in planning, implementation, and RM&E
 - Identify elements and characteristics of exemplary restoration and evaluation projects and programs
 - Develop recommendations to improve protection, restoration, and RM&E projects



2024 Retrospective Topics - Habitat

- Approach

- We will use program summaries, project proposals, reports and publications, Habitat RM&E Strategy, ISRP reviews, and ISAB reports to examine guidance, approaches, findings, effectiveness, and remaining challenges

- Why now?

- A similar review has not been completed for many years
- It is important to highlight major advancements and accomplishments and provide information that will be useful in development of new projects and for future project reviews
- There is general agreement that this habitat review is currently higher priority than the proposed Hatchery Retrospective Review



2024 Retrospective Topics - Hatchery

- Background
 - Hatchery programs are operated throughout the Columbia Basin to meet multiple management and cultural objectives and mitigate for hydrosystem and habitat degradation impacts
 - Extensive hatchery reform and evaluation efforts have occurred over the past two decades
 - New facilities have been constructed and changes in broodstock management, spawning protocols, rearing and release strategies, and natural escapement strategies have been implemented
 - New technologies and approaches have been developed to improve effectiveness monitoring
 - Hatchery programs have diversified to include mussels, burbot, lamprey, and sturgeon



2024 Retrospective Topics - Hatchery

- Need and goal for review and synthesis
 - It has been almost a decade since the ISRP or ISAB has completed a synthesis review of hatchery programs
 - A synthesis of evolving hatchery management objectives, operational procedures, monitoring and evaluation approaches, and performance and describing elements and characteristics of exemplary projects would be timely and beneficial
- Goal
 - Inform decision makers, managers , and the general science community of evolving management objectives, adaptive management changes, and performance of Program and LSRCPC hatcheries



2024 Retrospective Topics - Hatchery

- Approach
 - Recent program summaries, project proposals, reports and manuscripts, along with ISRP reviews and ISAB reports will serve as the primary information sources
- Why postpone?
 - Utilize the Council's Program performance tracking system which is under development
 - Additional information will be available from the 2025 LSRCP steelhead hatchery review and possibly the subsequent fall Chinook salmon review



Questions?

