

Agenda Item: Intensively Monitored Watersheds— Where Are We?

Presentation by: Steve Leider, Governor's Salmon Recovery Office; Dr. Bill Ehinger, Ecology; Dr. Bob Bilby, Weyerhaeuser; and others

Problem/Issue Statement

The Comprehensive Monitoring Strategy recommended one or more intensively monitored watersheds be established for each salmon recovery region of the state. Without a holistic IMW approach it will be impossible to determine the response of salmon to habitat restoration efforts. Some IMWs have been initiated. Do we have enough? Are they in the proper locations? Do they address the proper species? How long will it take to have an answer?

Task/Policy Addressed

Addresses Task 6: By reviewing pilot monitoring programs including those that integrate (a) data collection, management, and access, and (b) information regarding habitat projects and project management.

Methods/Solutions Proposed

The FORUM will be able to determine whether there are major gaps in the IMW approach and how it relates to Washington ESA recovery. It will also be able to determine the overall regional approach and what other agencies are partnering to produce results.

Attachments

Following related material is attached to this Summary or will be presented at the meeting:

IMW Power Point Presentation

What decision is asked of the Forum?

Affirmation that the IMWs are supported by the FORUM and are progressing as desired.

Overview of PNAMP strategy to establish a network of Intensively Monitored Watersheds in the Pacific Northwest

PNAMP IMW subcommittee

The Pacific Northwest Aquatic Monitoring Partnership (PNAMP) is working to identify, refine, and implement a network of Intensively Monitored Watersheds (IMWs) in the Pacific Northwest. This effort, outlined in "*Establishing a Network of Intensively Monitored Watersheds in the Pacific Northwest*" (PNAMP 2005), responds to the need to determine the extent to which restoration actions result in desired ecological outcomes, especially in terms of fish response. It draws heavily upon currently ongoing and planned efforts of parties engaged in IMW efforts across the Pacific Northwest.

As outlined in PNAMP (2005), work began with setting an IMW context, identifying the conceptual framework, delineating criteria against which candidate IMWs could be compared, and laying out a process for coordination. A total of 19 candidate IMWs have been identified by PNAMP as part of the first phase of work.

Completing phase 1 involves compilation of detailed study plans for each IMW, to include identifying the scope and nature of the management issues, monitoring questions, and restoration/recovery actions that would be tested in each IMW. In addition, articulating the basis and nature of study designs and implementation schedules for each IMW will be key elements of completing phase 1.

Finally, critical to completing phase 1 will be summarizing information on individual IMWs and an overarching landscape classification effort, to determine the extent to which results from ongoing IMWs can be extrapolated and inferences made across the PNAMP area. This important step will assess the extent to which coverage of the current IMWs addresses priority ecological strata, listed species, geographic areas, and policy/management priorities are addressed by the PNAMP phase 1 IMW network.

Phase 2 will involve reviewing the results of phase 1 at technical and policy levels, addressing issues and needs, and adapting the network as warranted.

As part of PNAMP's phase 1 IMW work, preliminary information on annual IMW costs and current funding is being compiled on: IMW time frames, current estimated or projected annual costs for both the monitoring and restoration treatment components of each IMW (as applicable), and the average annual cost of the combined monitoring and restoration components by IMW and the network in total over the stated IMW timeframes. Predominant funding sources will also be identified. Restoration costs would accrue even if IMW activities did not occur, assuming the restoration ranked sufficiently high as restoration priorities in the implementation of recovery plans. (Note: restoration treatment costs are typically expended over a shorter duration than the costs associated with monitoring the responses to those treatments.)



Intensively Monitored Watersheds: Where Are We?

**Panel briefing to the
Governor's Forum on Monitoring
Salmon Recovery and Watershed Health**

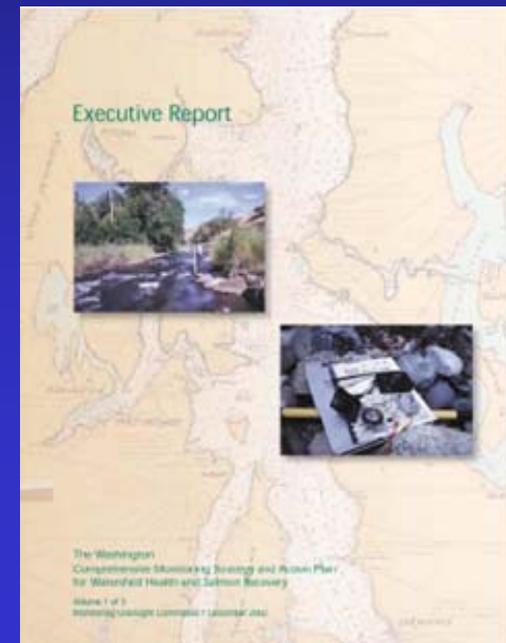
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What we will cover today

- Recap IMW background and context
 - How did we get here?
- Report on implementation of IMWs statewide
 - How are we doing?
 - Puget Sound & Lower Columbia: SRFB-funded
 - Upper Columbia: BPA/NPCC/NOAA-funded
 - Mid-Columbia and Snake: NOAA-funded

How did we get here?

- 1999 – Initial concept in “Extinction is Not An Option”
- 2002 – High priority recommendation in the Comprehensive Strategy and Action Plan (CMS)
- 2007 – CMS was adopted by legislature to guide monitoring coordination



CMS recommendations

- Adaptive Management
- Improved Access To Information
- *Accountability for Investments (Effectiveness)*
 - *Create one or more IMWs*
 - *Cluster habitat restoration projects by the SRFB and NPCC into IMWs*
- Trends In Environmental Conditions

The IMW part of effectiveness monitoring addresses the following key questions:

Does the collective effect of restoration and/or management actions result in improved watershed condition and fish response?

- Why or why not?
- What are the causes of those responses?

Distinguishing features

(compared to other types of effectiveness monitoring)

- IMWs are the fastest and most certain way to obtain reliable answers to cause-effect questions
- They:
 - Are highly integrative, at watershed (or population) scales
 - Stress fish response using rigorous experimental designs, aimed at accounting for confounding factors, and relating to control or reference conditions
 - Are highly sensitive to how the design is implemented

December 7, 2005

Forum recommendations to regions

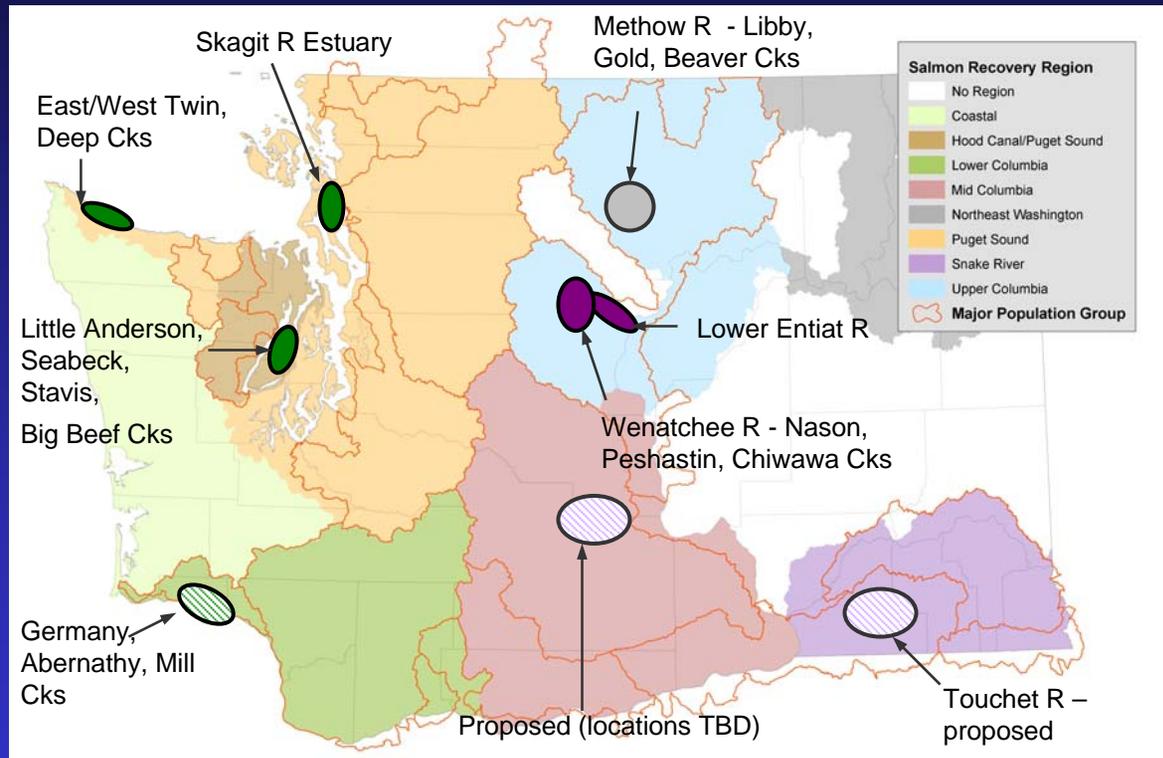
1. Include adaptive management
2. Address ESU viability
3. Monitor listing factors and threats
4. Monitor implementation and compliance
- 5. Include effectiveness monitoring*
6. Data should be accessible

December 7, 2005

"Include effectiveness monitoring"

- Incorporate existing Intensively Monitored Watersheds
- Explore establishing at least one IMW in each region to address priority questions
- Select watershed protection and restoration projects in IMW treatment areas

Map of Washington IMW efforts by salmon recovery region

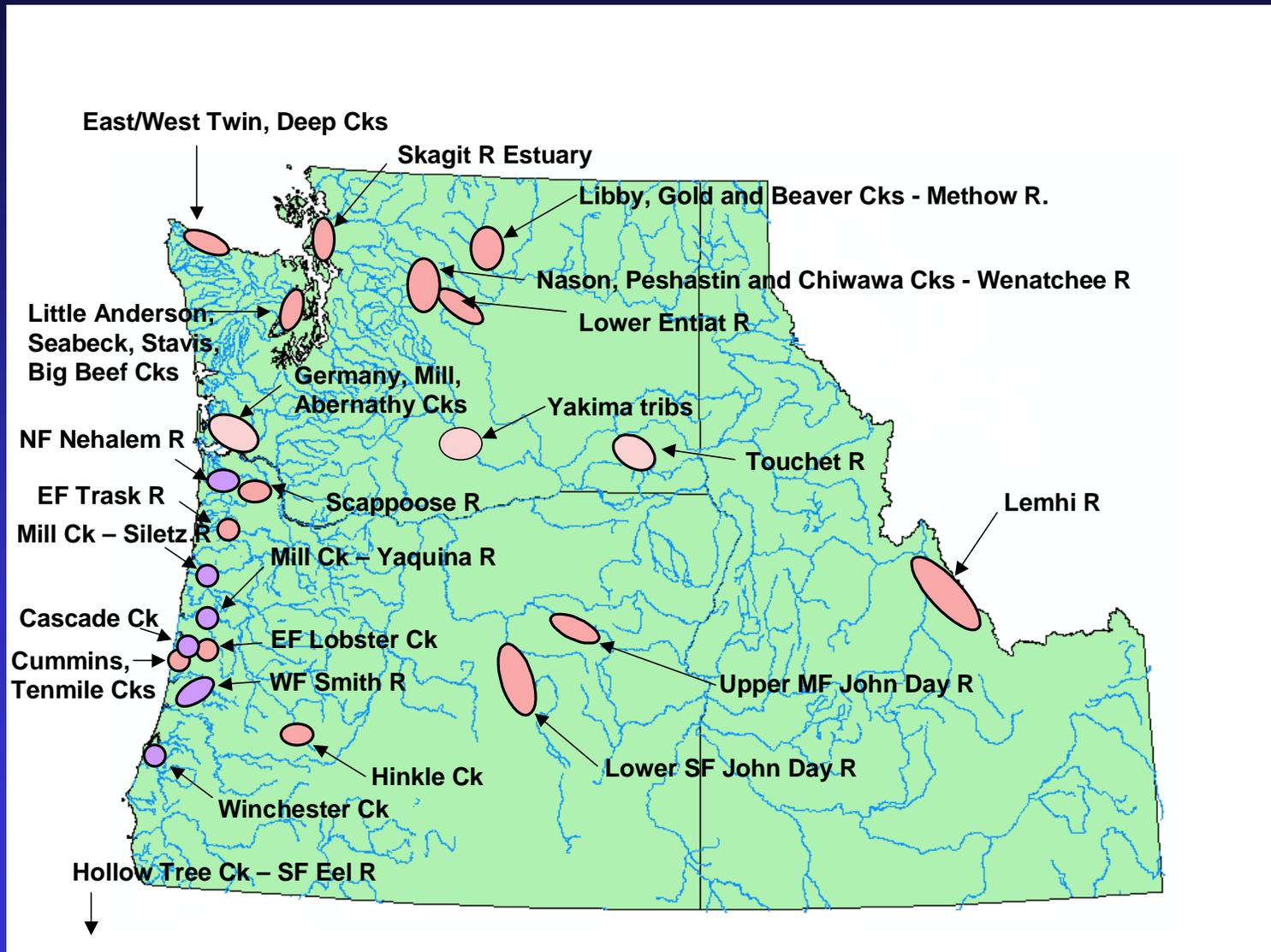


Green = ongoing SRFB-funded
 Purple = ongoing BPA-/NOAA funded ISEMP
 Grey = ongoing BOR-funded
 Cross hatched = new NOAA funding

But - we're not in this alone

- Broad interest exists
 - IMW efforts are underway across the Northwest
 - Other state efforts
 - Federal agencies
- 2005 PNAMP IMW Network Strategy
 - Multi-phase strategy and coordinating committee
www.pnamp.org/web/workgroups/PEM/meetings/2005_0830/2005_0405IMWPlan.doc
 - Incorporates IMW efforts in Washington

PNAMP Phase 1 IMW Network



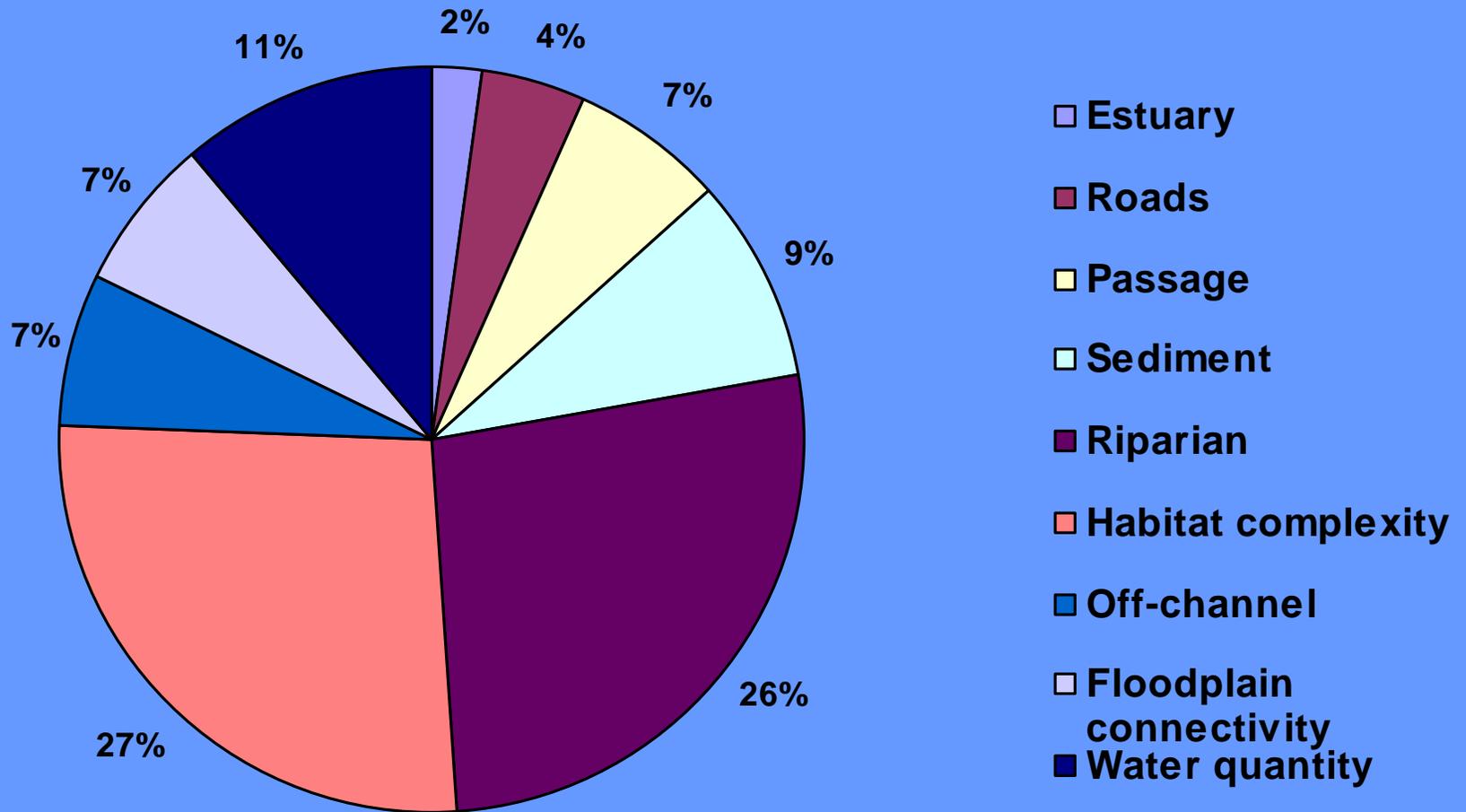
Example criteria for IMWs

- **Smolt and adult monitoring** are feasible
- **Limiting factors** are understood and being addressed (e.g., per sub-basin, watershed, or recovery plan(s))
- **Experimental design** - activities in the IMW can be managed to the extent necessary to maintain the integrity of the design throughout the life of the project
- **Control or reference** streams or alternatives exist to provide comparisons to the treatment stream(s)

PNAMP Phase 1 IMW Network

- To date, 19 IMW opportunities are being explored
- Species focus:
 - 32% Chinook
 - 24% bull trout
 - 20% steelhead and coho
 - 4% chum
- 50% of the IMWs are in forested areas, >30% are in agricultural areas
- The majority of IMWs address habitat complexity and riparian limiting factors

Phase 1 PNAMP IMW habitat action categories



What will it take to do watershed-scale restoration (with IMW monitoring)?

- Projects must be implemented to address watershed-scale response, with sufficient coverage and duration
- Treatments and controls must be well matched
- Implementation of actions and monitoring must be coordinated within IMWs
 - *Separation of monitoring and restoration at the watershed scale must be avoided*

General ISP recommendations

- Clarify experimental designs and hypotheses to be tested
- Clarify expectations regarding inferences beyond each IMW
- Improve mechanisms to ensure that needed restoration actions are implemented
- Support and expand outside collaboration

Lessons?

- An IMW 'movement' has emerged – opportunities and risks
 - Effectiveness and IMW monitoring have risen to the level of programmatic attention
 - But... the stakes have risen too
- Places where support and capacity for restoration **and** IMW monitoring are present (success factors) are few
- Maintaining partnerships and long term funding support will be difficult, but essential to success

Predominant funding sources and current estimated annual costs

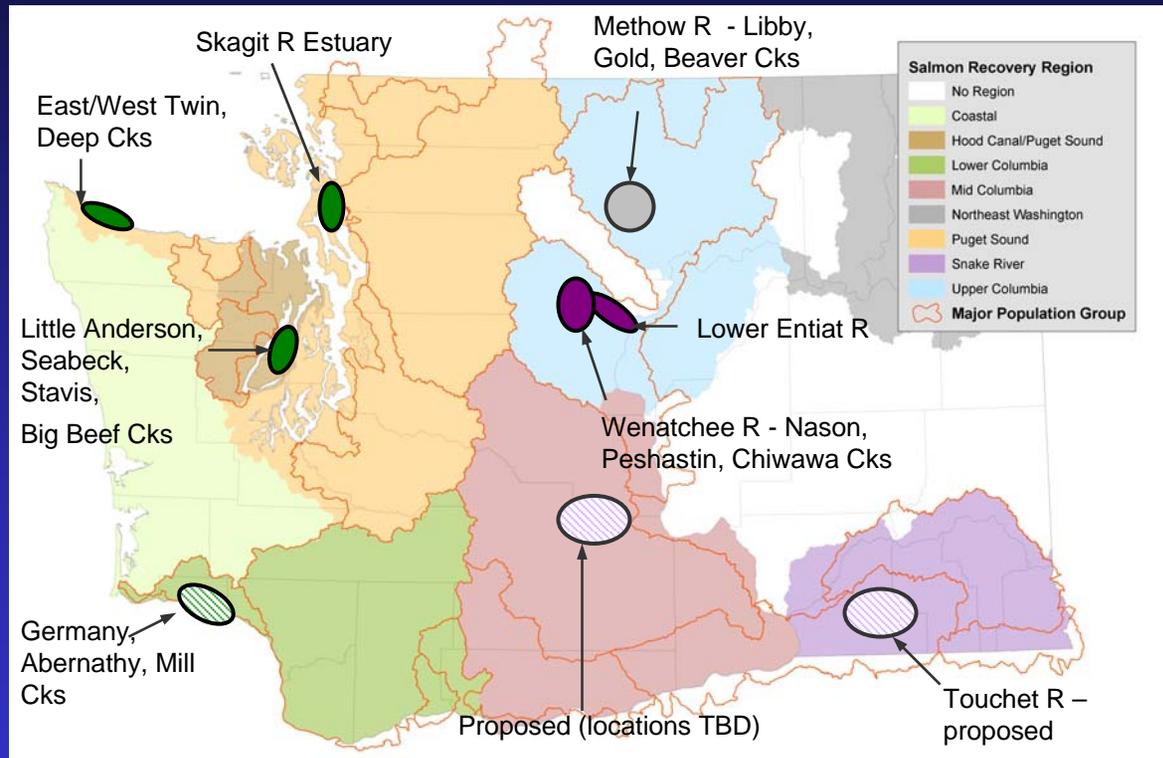
PNAMP

Predominant funding source	Estimated or projected annual funding	Number of IMWs
BPA	\$2.55M	3
SRFB	1.750M	4
NOAA Fisheries	1.176M	4
OSU and partners	0.700M	1
ODFW/OWEB	0.642M	5
BOR	0.505M	2
CDFG	0.353M	1
ODF and partners	0.320M	1
TOTAL	\$7.986M	19

Washington

Predominant funding source	Estimated or projected annual funding
SRFB	\$1.750M
BPA	1.650
NOAA Fisheries	0.340M
BOR	0.250M
TOTAL	\$3.99M

Map of Washington IMW efforts by salmon recovery region



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