

Phil Rockefeller
Chair
Washington

Tom Karier
Washington

Henry Lorenzen
Oregon

Bill Bradbury
Oregon



Northwest Power and Conservation Council

W. Bill Booth
Vice Chair
Idaho

James Yost
Idaho

Pat Smith
Montana

Jennifer Anders
Montana

March 31, 2015

MEMORANDUM

TO: Council members

FROM: Council staff

SUBJECT: Update on O&M strategic plan

BACKGROUND:

Presenter: Mark Fritsch and Jeff Allen

Summary: Council staff will present an update on the progress made by the Fish and Wildlife Committee regarding the development of the O&M strategic plan.

Relevance As part of the Program implementation, an investment strategy is outlined (Part Six; Section II, and Appendix P). Within this strategy long-term maintenance of past investments was prioritized as the highest Program priorities.

Workplan: This work is being tracked in the annual Fish and Wildlife Work Plan and the Council's Annual Work plan, Section 2b (Priority Objective 2, Action B, Sub-action *Long-term O&M inventory priorities*).

Background: Since the adoption of the 2014 F&W Program in October 2014, the Council staff (State and Central) has been working with the O&M Sub-Committee, Independent Economic Analysis Board (IEAB), Bonneville staff, and Fish Screening Oversight Committee (FSOC) to develop a long-term O&M strategic plan to ensure the longevity and integrity of the Programs past investments. The strategic plan was presented to the Fish and Wildlife Committee (Committee) at their January 2015 meeting.

During this Committee meeting, the Committee also deliberated on the history, categories, and needs associated with a long-term O&M strategic plan to protect the Program investments made for the benefit fish and wildlife.

The Committee requested that an update be provided to the full Council on the ongoing efforts and current direction of the strategic plan.

O&M Strategic Plan

Categories

1. Screens and diversions:
 - a. Development of an inventory:
 - i. FSOC was asked to develop a screen inventory as part of the Geographic Review in 2013. Received initial inventory in mid January 2015.
 - b. Assessment complications
 - i. Difference in complexity of the facilities found in this category which complicates the assessment. Further definition and assessment is underway.
 - c. Initial effort
 - i. The current review will focus on existing screens and diversions.
 - d. Future O&M
 - i. The Council will consider a mechanism for putting O&M in place for future screens and diversions at the time an asset is considered and built.
2. Hatcheries, fishways and traps:
 - a. Defining and initiating an assessment.
 - i. Additional definition for this category is needed. Initial effort will focus on the 15 direct Program hatcheries. Will rely on Bonneville's project managers and the state and tribal project leads will assist in the inventory and assessment.
3. Lands:
 - a. Lands will continue to be monitored by the Council, with O&M needs funded by Bonneville until settlement agreements are reached.
4. Budget Oversight Group (BOG):
 - a. Will continue to be used to address natural events, emergencies and miscellaneous needs

Asset Management Program

This framework is intended to provide a mechanism to achieve a long-term maintenance, rehabilitation, and replacement plan for

Program investments. The approach is based on similar assessment processes Bonneville uses for the maintenance of transmission and hydro facility assets.

- a. Phase 1: Asset Inventory
 - i. Shared understanding of definitions (O&M, non-recurring maintenance, etc.)
 - ii. Standardized data
 - iii. Clarity on roles and responsibilities
- b. Phase 2: Condition Assessment
 - i. Safety – compliance – condition
- c. Phase 3: Prioritization
 - i. Program criticality and condition
- d. Phase 4: Strategic Planning
 - i. Planning – funding – transition

Timelines

The O&M Sub-Committee is currently working with the FSOC regarding the screens inventory. An initial inventory (Phase 1) with provisional condition assessment (Phase 2) has been completed, but requires further definition and standardization. Meetings will be held with FSOC members to continue refining the asset inventory in April. Due to earlier than anticipated irrigation season, it is anticipated that the inventory and condition assessment can be completed by July 2015.

The Phase 1 inventory associated with the hatchery category has been initiated by Bonneville. This initial inventory with existing data will be completed in spring 2015. However, further work associated with definitions, data standardization, and condition assessment (Phase 2) will be needed. The Sub-Committee will be working with Bonneville's Project Managers and the hatchery managers to identify long-term O&M needs. It is anticipated that a letter will be distribute by May to the managers of the direct Programs hatcheries.

Bonneville has an ongoing effort to inventory lands and address compliance issues. The O&M sub-committee will monitor Bonneville's efforts and review their completed inventory by mid-summer.

Miscellaneous

As the O&M Sub-Committee works through the development of the O&M strategic plan, several issues have been identified, that need to be further discussed., tracked, or possibly incorporated into the final strategic plan, including:

1. The importance of regular maintenance
2. Public and fish and wildlife manager review
3. Link to the Principles of the Program

4. New facilities will need to address the outcomes and be incorporated into the long-term strategic plan.
5. The inherent overlap with the principles embedded in the cost saving and adaptive management sections of the recently adopted Fish and Wildlife Program
6. Incorporation of decommissioning costs as part of the long-term plan
7. Need to identify the party or parties responsible for O&M
8. Legal discussion/obligation for Bonneville to pay the O&M, and the Importance to initiate shifting the responsibility if appropriate

More Info:

- [2014 F&W Program](#) (Part Six, Section II, page 114; and Appendix P, Maintenance of Fish and Wildlife Program Investments, page 199).
- <http://www.nwcouncil.org/media/7148580/f8.pdf> - December 2014 Fish and Wildlife Committee packet memo regarding *O&M long-term funding strategy framework*.
- <http://www.nwcouncil.org/media/7148646/f2.pdf> - January 2015 Fish and Wildlife Committee packet memo regarding *Update on O&M regional process letter*.
- <http://www.nwcouncil.org/media/7148795/f4.pdf> - February 2015 Fish and Wildlife Committee packet memo regarding *Update on O&M regional process letter*.

Update on O&M strategic plan

April 7, 2015

Background

- Over the past three decades, BPA has made substantial investments in the Columbia River Basin through the Council's Fish and Wildlife Program.
- Adequate funding for O&M was one of the highest priorities recommended to the Council.
- Adequate funding for O&M will ensure that existing Program funded infrastructure remains properly functioning, and will not only continue to benefit the fish and wildlife in the basin, but will continue to help BPA meet its mitigation requirements.

O&M Strategic planning

Planning Elements

- Fish and Wildlife Committee
- Initial sub-committee meeting was held on February 5th
 - IEAB Task – January 2015, Task 211; *Approaches to Improve Planning for Long-Term Costs of Fish and Wildlife Projects*
 - FSOC – Geographic Category review (Programmatic Issue #C)
 - Asset Management Strategy
- Developing a Strategic Plan for Public Review

Categories

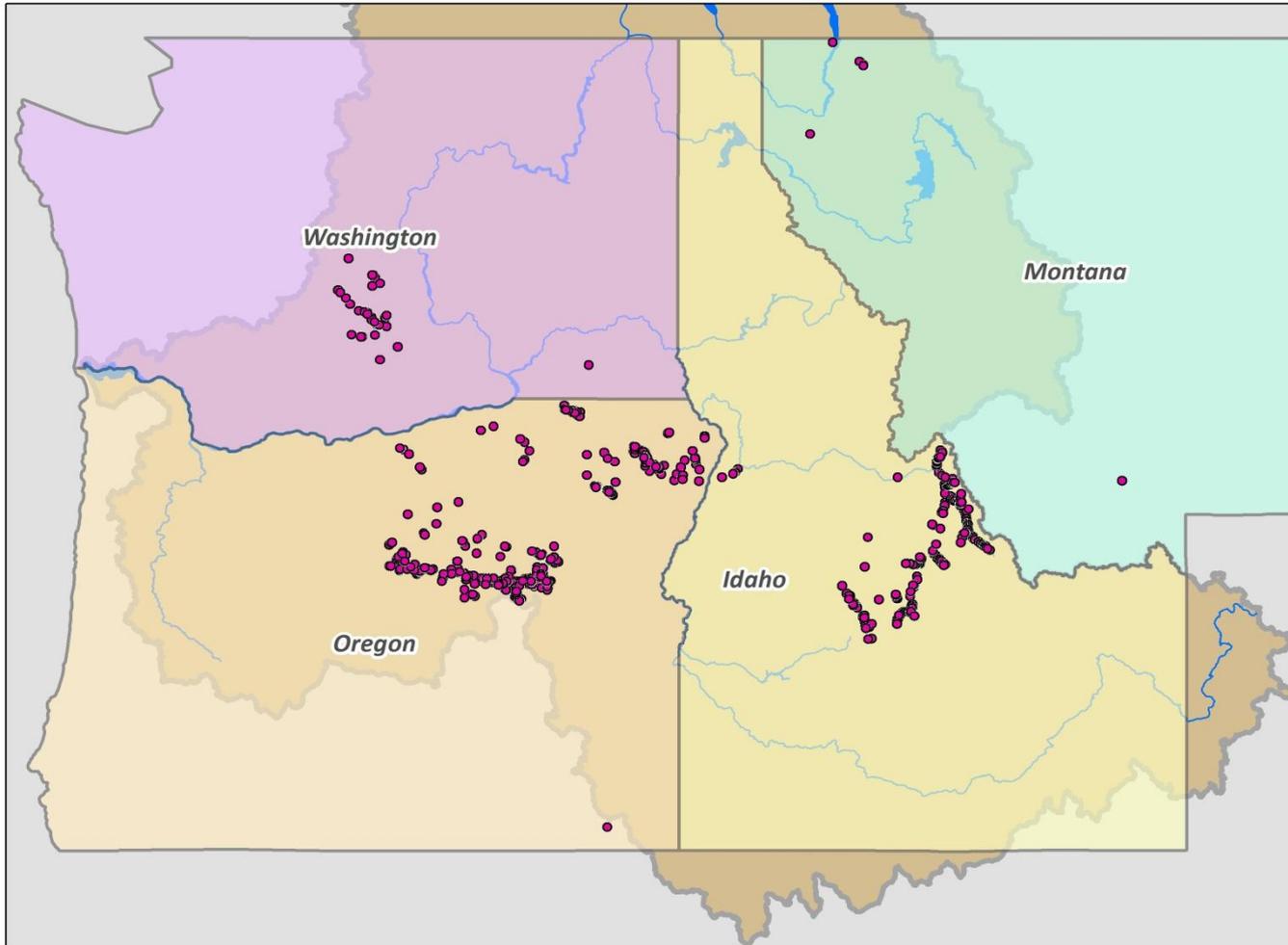
- Screens and diversions: inventory and assessment in progress – July 2015
- Hatcheries, fishways and traps: initiating, more definition is needed - ongoing
- Lands: inventory in progress, influenced by settlements
- BOG will continue to be used as a tool to address natural events, emergencies and misc. needs

Screens and diversion

- Initiated by Programmatic Issue #C of the Geographic Category review, FSOC was tasked to do an inventory of screens in the basin.
- Difference in complexity of the facilities found in this category, which complicates assessment



Existing Fish Screens by State

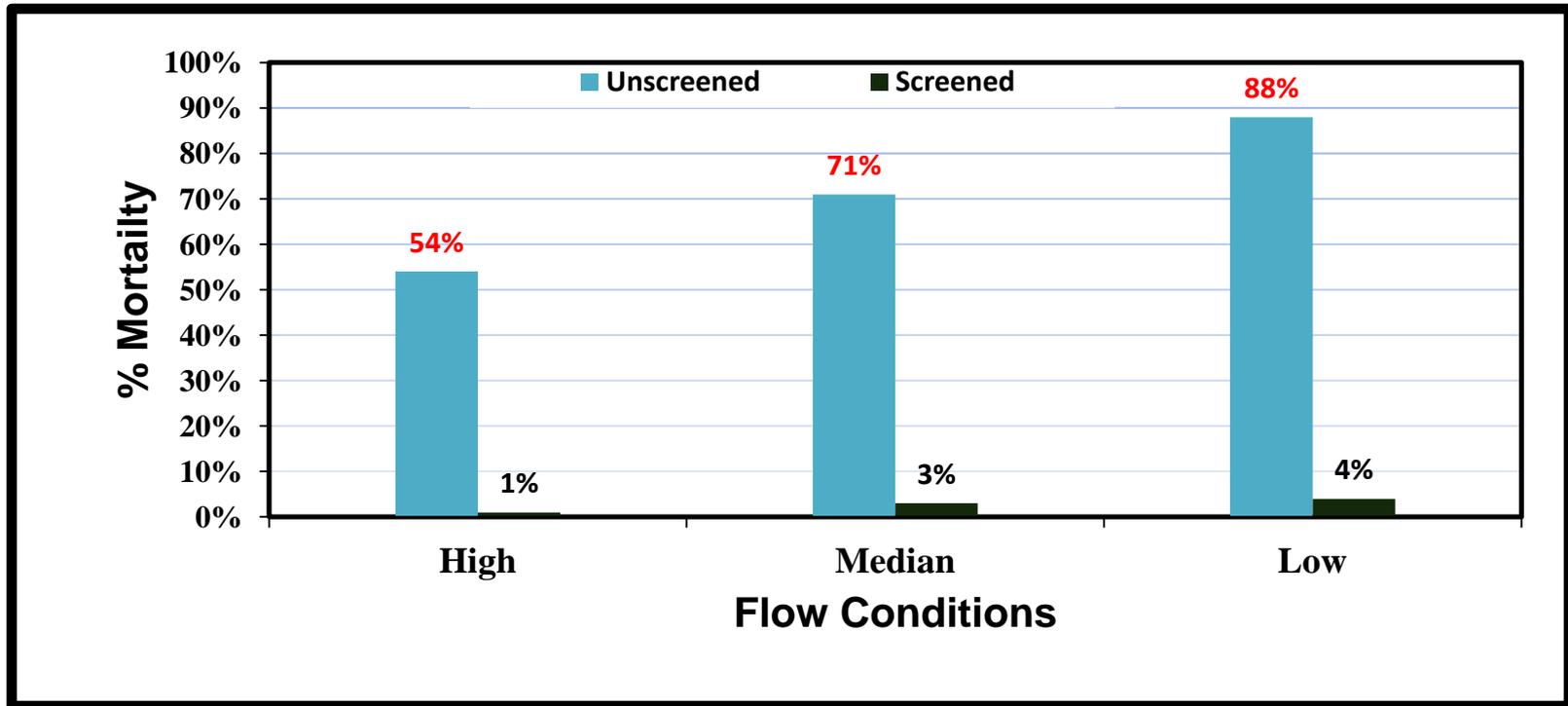


Lemhi Case Example

- High entrainment losses into irrigation systems provided the impetus for fish screening in the early 1960's.
- In 1958, it was estimated that 423,000 salmon fingerlings were lost in 90 irrigation canals (Gebhards 1958).
- In 1961 and 1962, it was estimated that 84 screens on the Lemhi River bypassed 271,000 and 91,500 juvenile Chinook salmon (Corley 1962).
- IDFG's effort to install fish screens in irrigation diversions has reduced the stranding of out-migrating smolts from an estimated 71 percent to 1.9 percent, preserving tens of thousands of juvenile salmon annually



Annika W. Walters, Damon M. Holzer, James R. Faulkner, Charles D. Warren, Patrick D. Murphy & Michelle M. McClure (2012): **Quantifying Cumulative Entrainment Effects for Chinook Salmon in a Heavily Irrigated Watershed**, Transactions of the American Fisheries Society, 141:5, 1180-1190



- The cumulative effect of water diversion on smolt out-migration was substantial, the installation of fish screens would reduce entrainment by 50-90%.

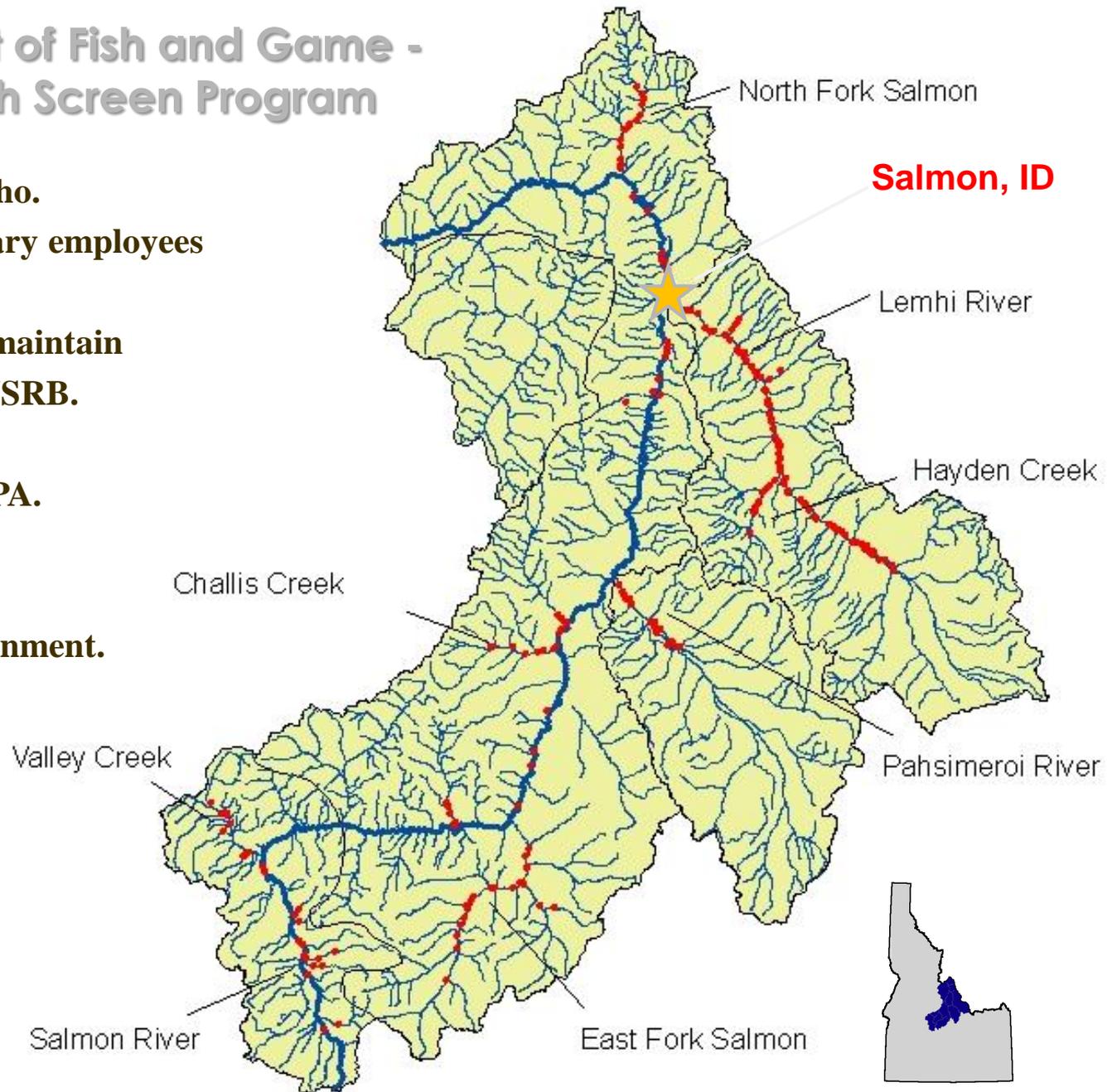
Anadromous Fish Screen Program



**Paddy Murphy – Program Coordinator
Idaho Department of Fish and Game
Region 7 – Salmon, Idaho**

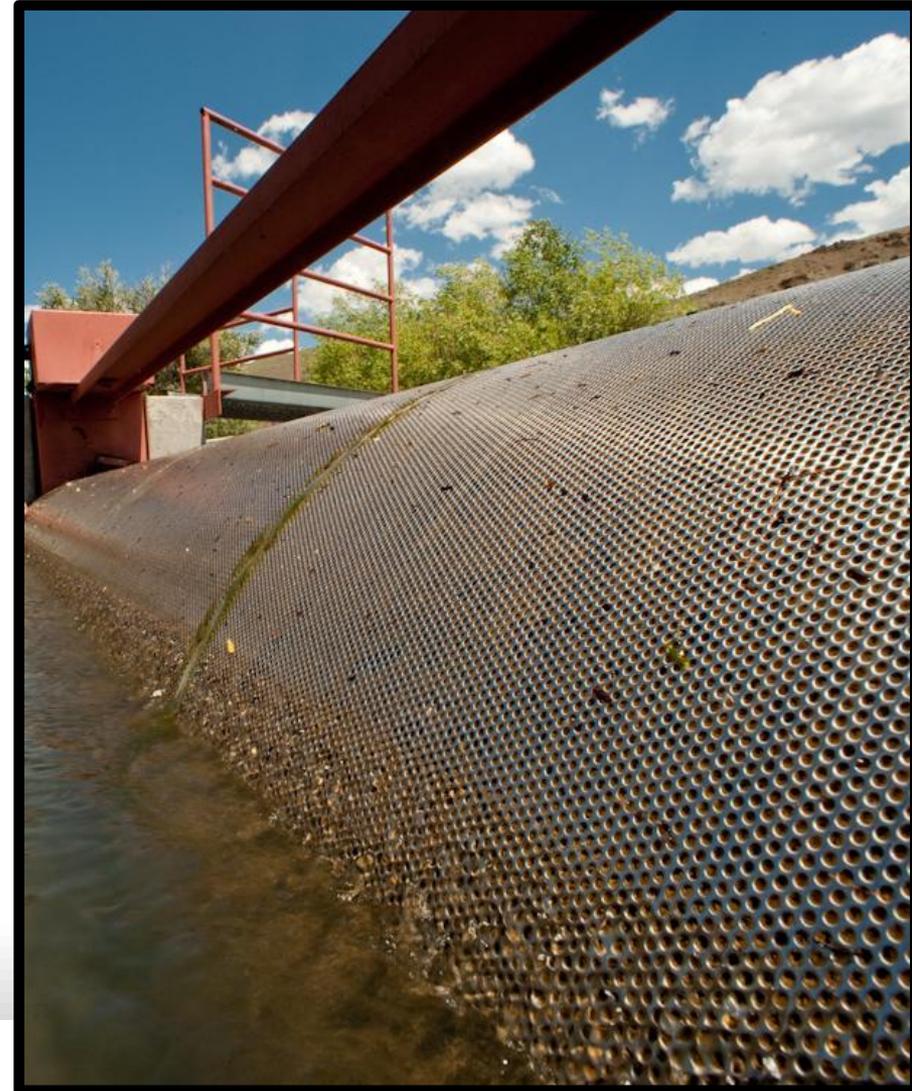
Idaho Department of Fish and Game - Anadromous Fish Screen Program

- Located in Salmon, Idaho.
- 12 full-time/ 17 temporary employees
- Installed, operate, and maintain 263 fish screens in the USRB.
- NOAA Mitchell Act / BPA.
- Major Limiting Factor:
Fish passage and entrainment.



Objectives

- **Increasing fry to smolt survival of anadromous salmon and steelhead.**
- **Improving fish passage to critical tributary habitat.**
- **Increasing survival and abundance of resident salmonids.**



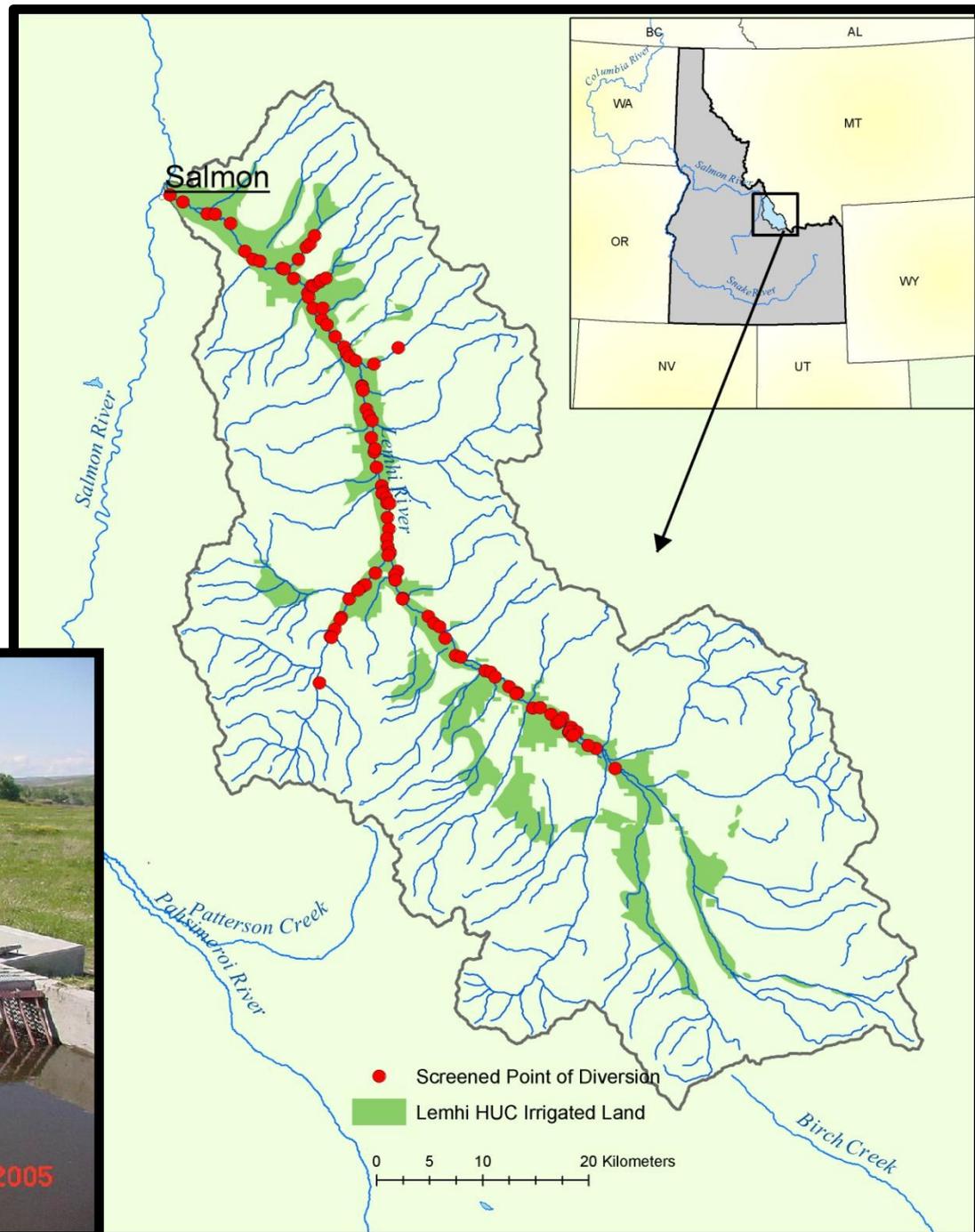
Limiting Factors – Water Diversion

- **Entrainment**
- **Fish passage /Migration barriers**
- **Isolation of populations**
- **Alters fluvial processes.**
- **Decreases available habitat.**
- **Decreases productivity.**
- **Increases water temperatures.**



Upper Salmon River Basin Fish Screening

- High percentage (> 90%) of Chinook salmon spawn on private property.
- All mainstem diversions are screened
- Rotary drum screens built to NMFS Juvenile Fish Screen Criteria
- High Priority – Subbasin Plans, Recovery Plans,

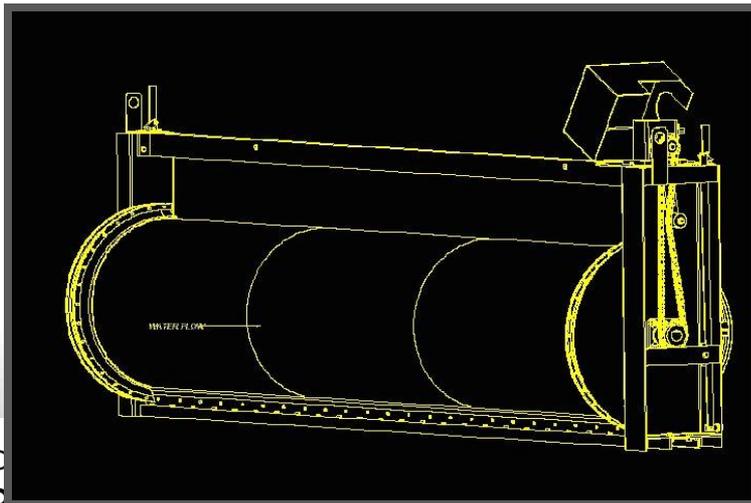


1958-1991



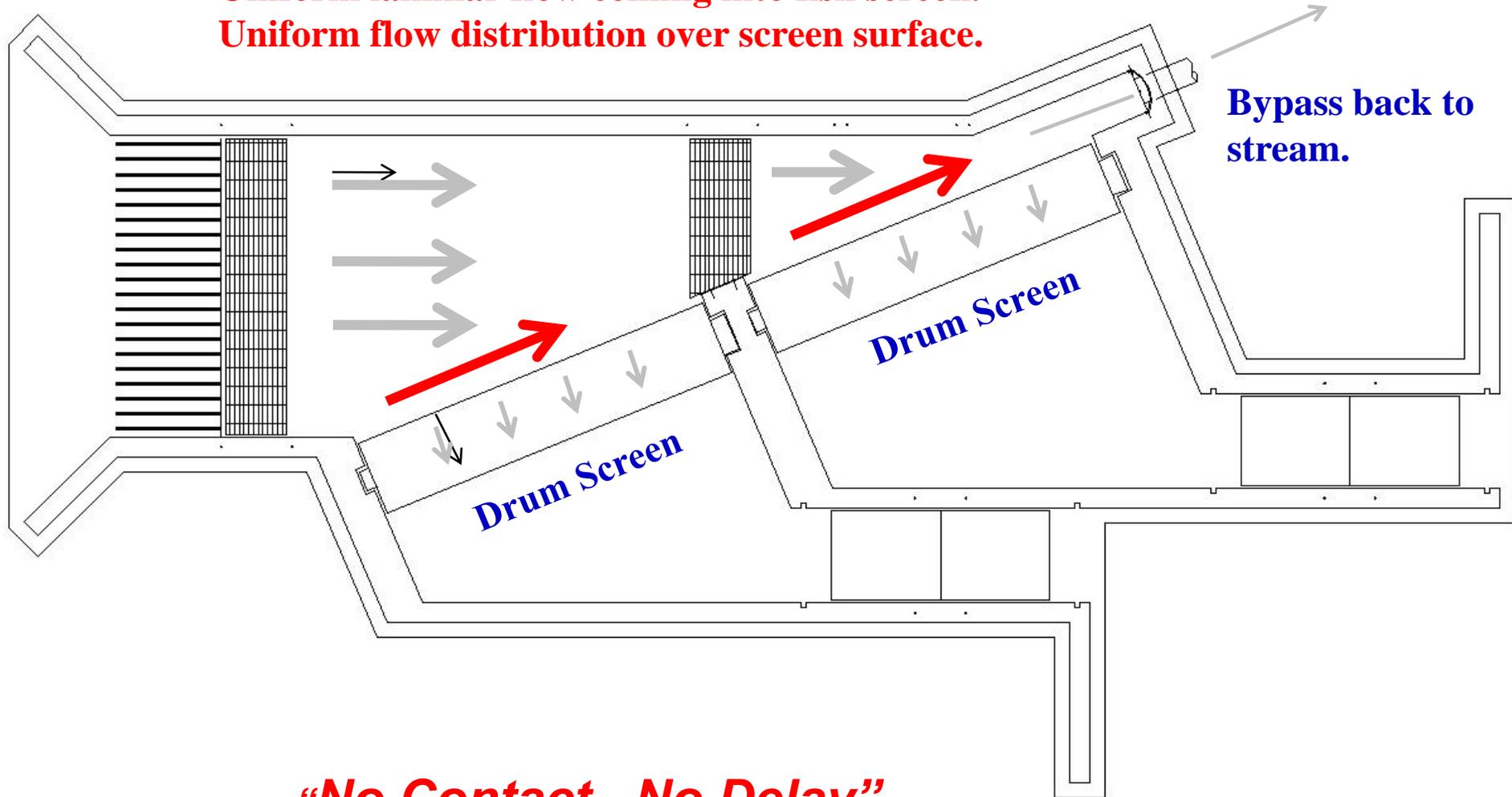
Fish Screens are Complex

- Needs a true Bio-Engineering approach.
- Every site has its own unique characteristics.
- Engineering is critical to meet criteria .
- Biological interactions need consideration.
- Maintenance cannot be underestimated.



Juvenile Fish Screen Criteria

**Uniform laminar flow coming into fish screen.
Uniform flow distribution over screen surface.**



"No Contact, No Delay"

“Predictable Performance with Predictable Biological Effects”



Dedicated Maintenance



Screen Tenders



A Foundation Built on Relationships



MAY 31 2006

Rising Costs – Shrinking Budgets

Operating Costs	1995	2015	% Increase
Gasoline (per gallon)	\$ 1.21	\$3.44	184%
Steel (Sheet 4' x 8' 3/16")	\$53.00	\$168.00	217%
Minimum Wage	\$4.25	\$10.10	137%

Continued Momentum.



09.02.2014 18:19

Questions



Hatcheries

- Lower Snake River Compensation Plan (LSRCP)
- Bureau of Reclamation Hatcheries
- Corps of Engineers Hatcheries
- Mitchell Act Hatcheries
- NPCC F&W Program hatcheries
 - 15 hatcheries directly constructed with BPA funds. Ownership was transferred to state, tribal or federal entity.
 - O&M is directly funded by BPA; a large percentage of O&M funding is RM&E

Program Hatcheries

- Nez Perce Tribal Hatchery (NPT)
- Colville Hatchery (CCT)
- Umatilla Hatchery (ODFW)
- Spokane Tribal Hatchery (STOI)
- Sherman Creek Hatchery (WDFW)
- Ford Hatchery (WDFW)
- Hood River Production (CTWSRO/ODFW)
- Snake River Sockeye (IDFG)
- Kalispel Hatchery (KT)
- Sekokani Springs Hatchery (MFWP)
- Cle Elum Hatchery (YKFP)
- Chief Joseph Hatchery (CCT)
- Kootenai Tribal Hatcheries (KTOI)

BPA funds O&M on other hatchery-related elements including weirs, traps and satellite facilities not reflected in the list above. Currently there several new hatcheries in Step Review (e.g., Walla Walla Hatchery, Crystal Springs, and YKFP).

Lands

- BPA currently has an asset management plan for all acquired fish and wildlife lands – focused on compliance with conservation easement terms
- The majority of BPA’s wildlife mitigation program has focused on the permanent protection of high priority habitats through acquisition and conservation easements
- Restoration and maintenance activities continue after acquisition to enhance and maintain conservation values, including use of stewardship funds (first piloted in the Willamette and for estuary projects)
- Settlement agreements to date:
 - Montana Wildlife Settlement
 - Dworshak Wildlife Settlement
 - Washington Interim Wildlife Agreement
 - Willamette Wildlife Agreement
 - Southern Idaho Wildlife Agreement

Lands (continued)

- Wildlife mitigation on a project-by-project basis has been conducted in the following areas:
 - Albeni Falls
 - Southern Idaho
 - Upper Columbia
 - Lower Columbia
 - Lower Snake
- Acquisition for anadromous and resident fish is used in selected situations to secure habitat restoration opportunities and to obtain key locations for fish production.

Asset Management Strategy

- Phase 1: Inventory
 - Shared understanding of scope and scale for each category
 - Standardize data for development of system support
 - Clarity on rolls and responsibilities
- Phase 2: Condition and Needs Assessment
 - Safety – compliance – condition
- Phase 3: Criteria for Prioritization
- Phase 4: Strategic Planning
 - Planning – funding – transition to prioritized implementation