

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

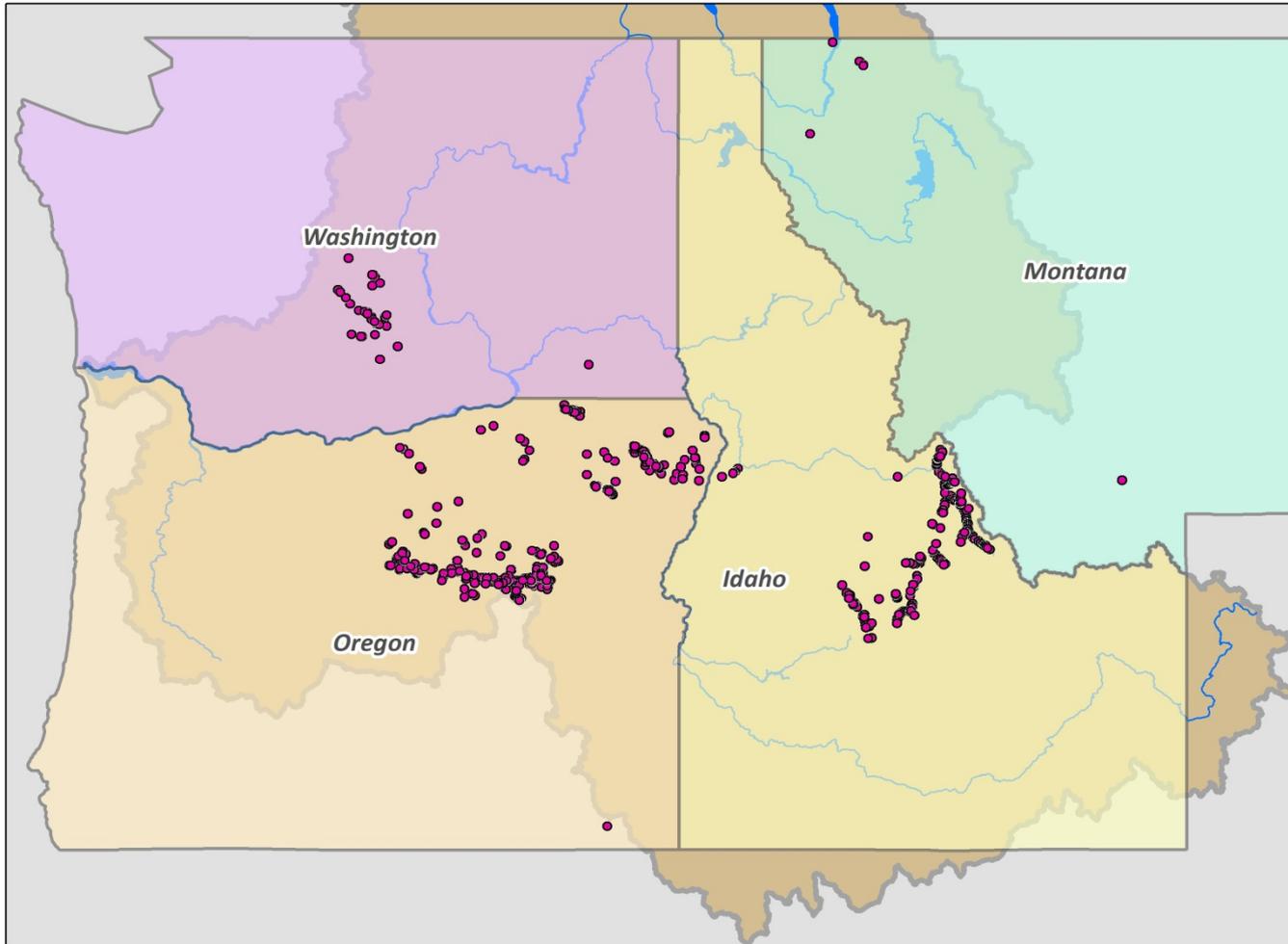
- Screens and diversions: inventory and assessment in progress – July 2015
- Hatcheries, fishways and traps: initiating, more definition is needed - ongoing
- Lands: inventory in progress, influenced by settlements
- BOG will continue to be used as a tool to address natural events, emergencies and misc.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

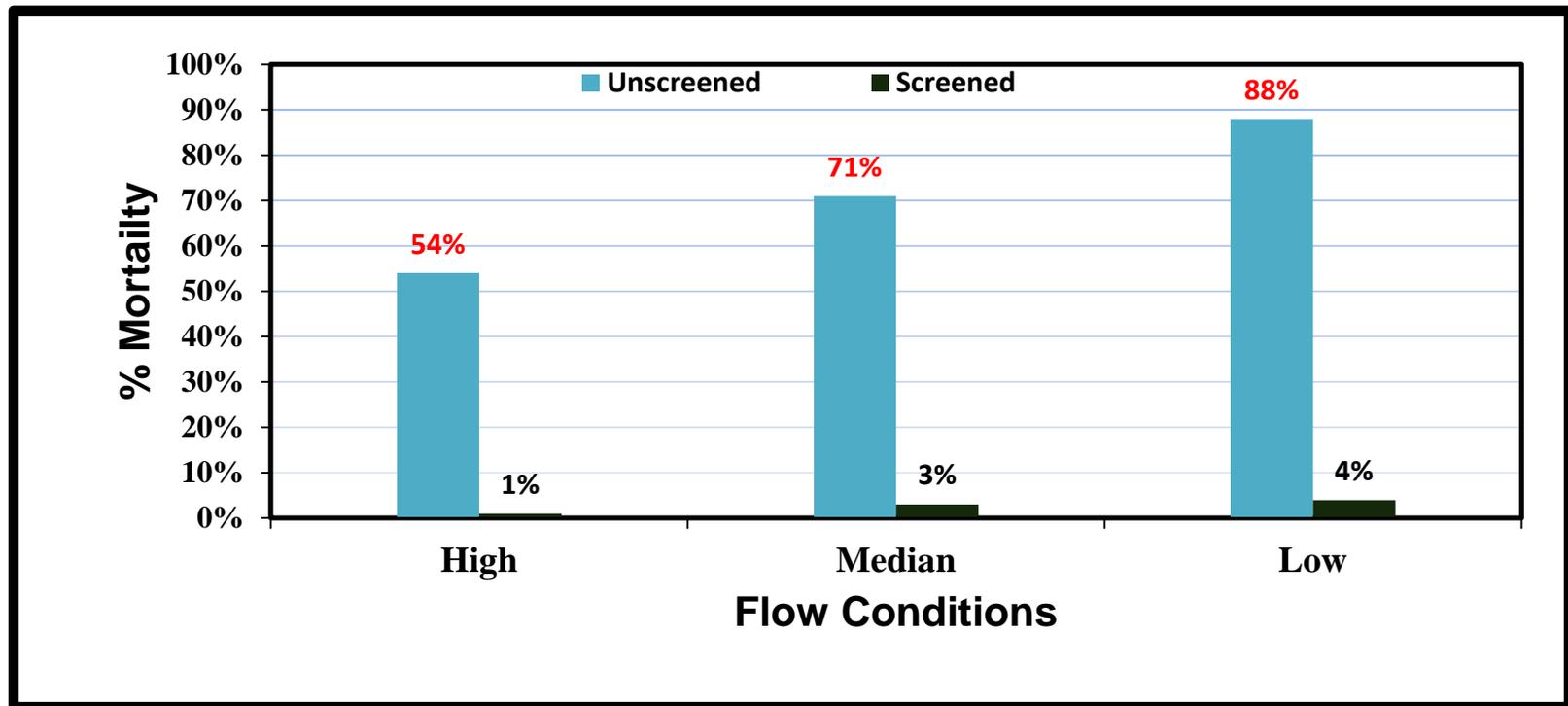


Lemhi Case Example

- 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%.

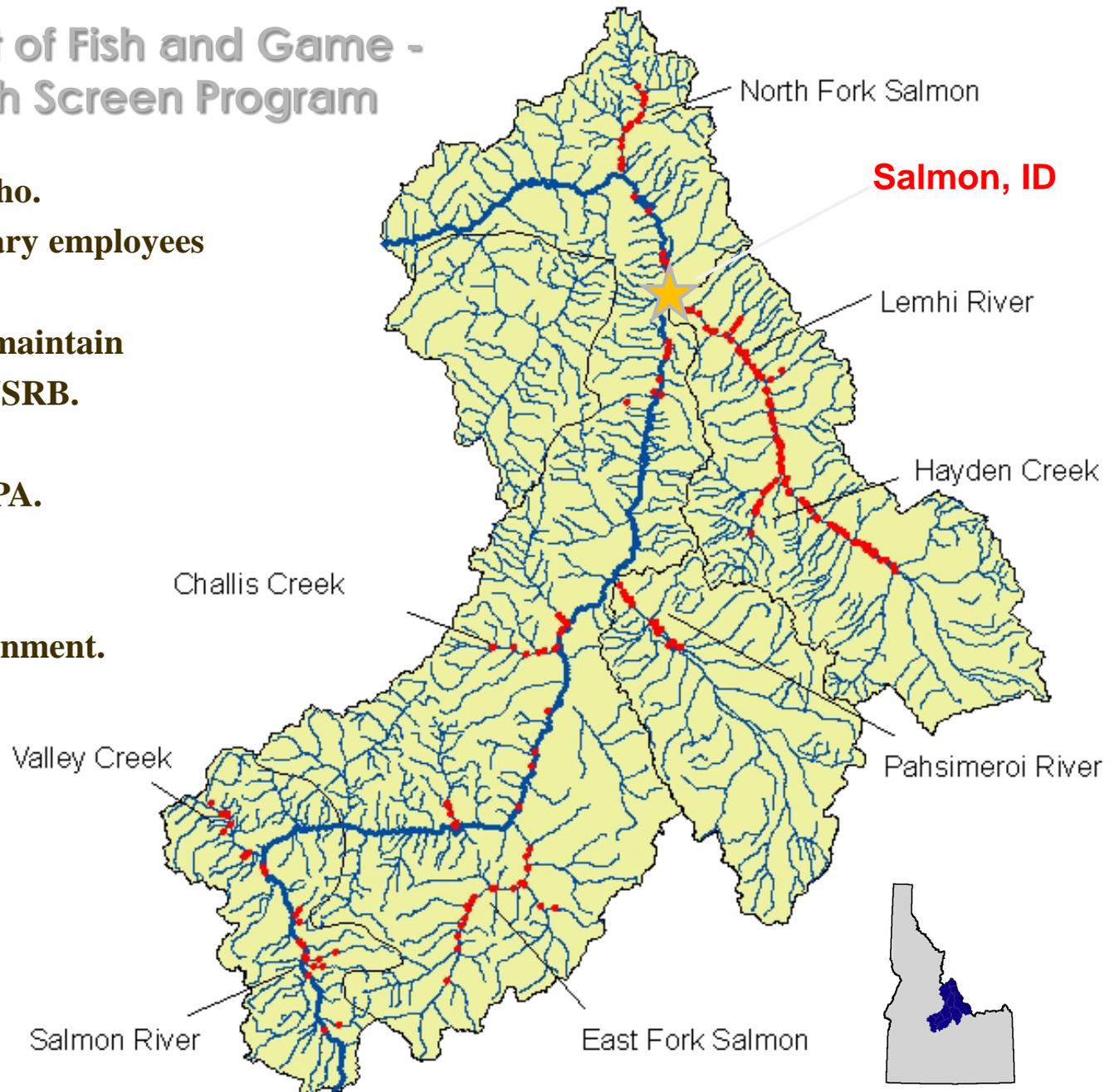
Anadromous Fish Screen Program



**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.**



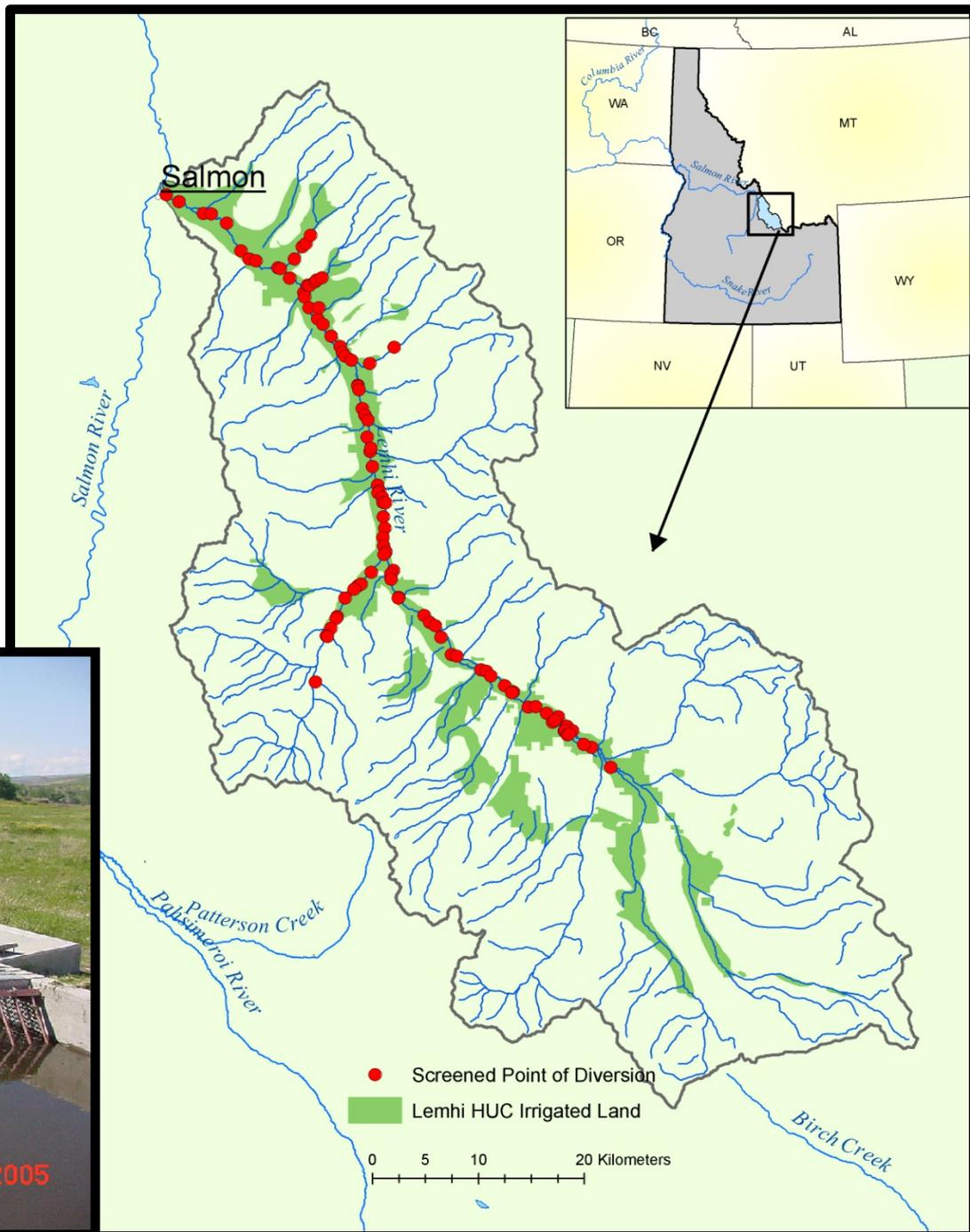
Limiting Factors – Water Diversion

- **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,

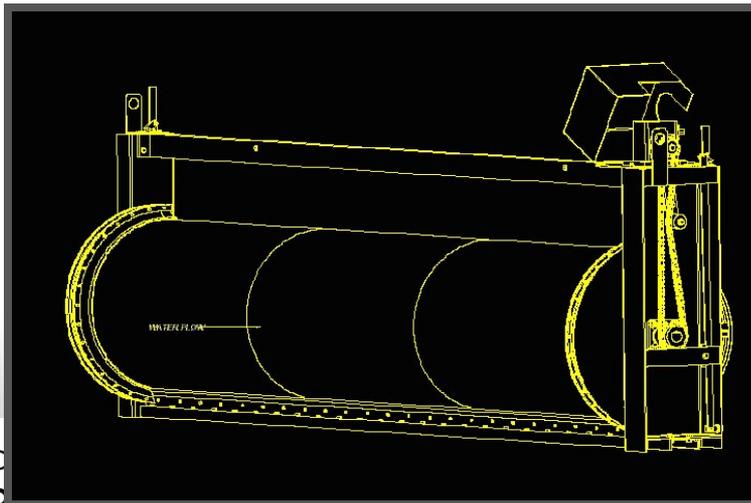


1958-1991



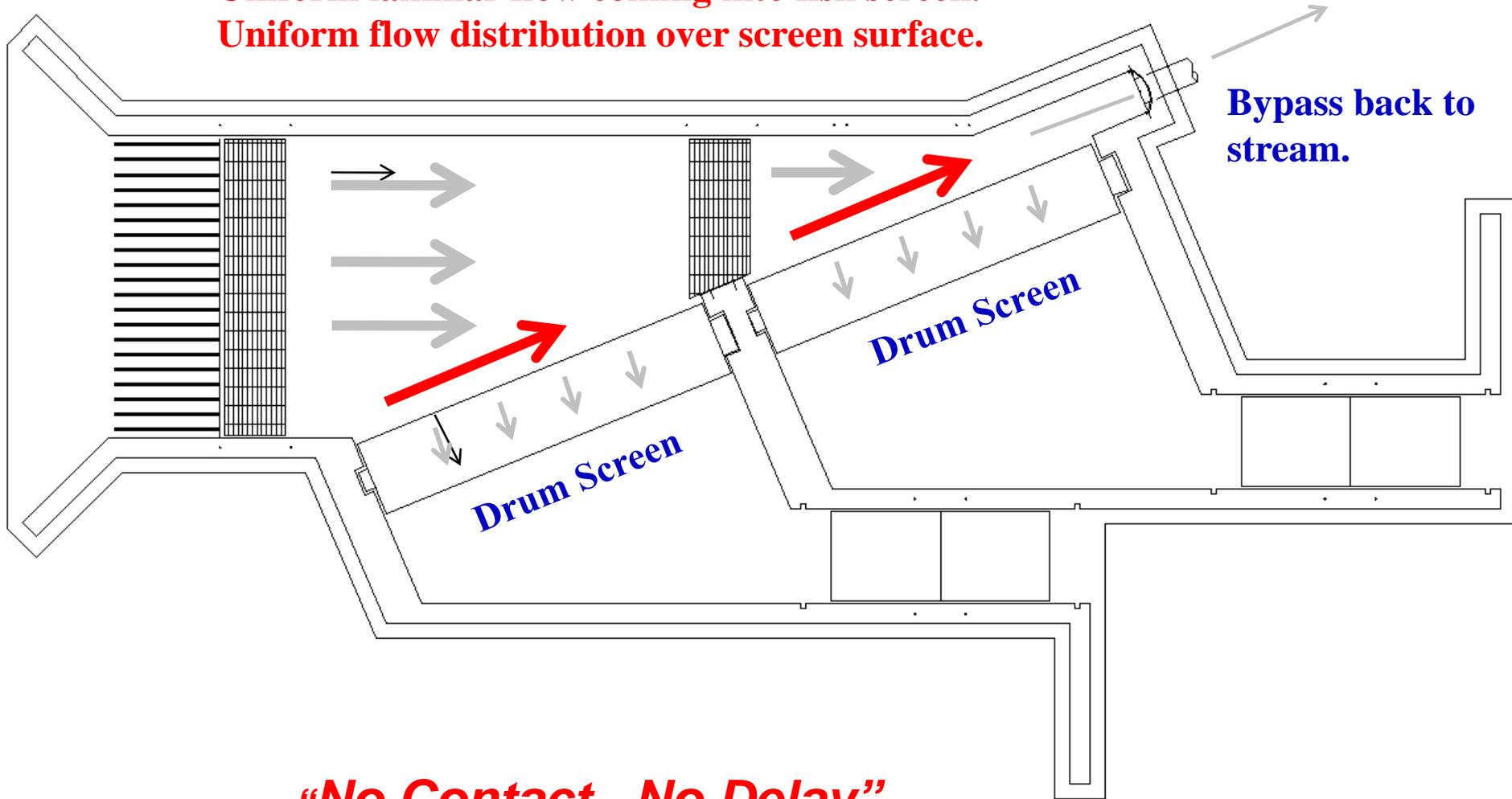
Fish Screens are Complex

- 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.



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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