

# Species

- Main focus for NMFS is ESA listed salmonids,
- Equal focus for NMFS is to protect essential fish habitat under MSA
- Some states require passage of all species all of the time
- increasing emphasis on lamprey, bull trout, cutthroat trout, sturgeon passage
- On West Coast, NMFS is responsible for anadromous salmonid species

# 2012 Fish Passage Training

Hood River, Oregon

By the Fish Screen Oversight Committee  
of CBFWA

September 17-20, 2012

# Why are we here?

To solve passage needs of different life stages

- Adult Salmonids
- Juvenile downstream migrants
- Rearing fish



# How do we do it?

- Less agency staff to cover projects
- Columbia River is warming up and getting close to reaching temperatures inhospitable for salmon, especially in late summer/early fall.
- Increased marine mammal predation below Bonneville Dam and tributaries below Bonneville (Lewis, Cowlitz, Willamette)

# Challenges - Technical

- Opening up blocked habitat
  - usually due to high head and/or multiple hydro projects
  - biggest passage obstacle is downstream migration through large reservoirs
  - long term O&M issues with trap and haul

# Examples of high head projects being fitted for passage

- ❖ Merwin/Swift (Lewis River)
- ❖ Pelton Round Butte (Deschutes River)
- ❖ Cushman (Skokomish River)
- ❖ Willamette COE projects
- ❖ Baker River (Skagit River)



# Opportunities

- Hydropower agencies are sometimes coming to the table early to settle some of the outstanding fisheries issues prior to relicensing. Examples - Clackamas (PGE), Rocky Reach (CPUD), Priest Rapid (GPUD), Wells (DPUD)

# Why?

- There seems to be an acknowledgement that fisheries issues will be front and center at hydropower projects in the Pacific Northwest.



# Is it the dams?

- Dam removal is usually considered and often pursued at projects with poor cost/benefit ratios.
- Dam operators with good cost/benefit ratios are anxious to preserve their hydro resource.

# How can it not be the dams?

- Not all dams kill off all fish.
- No dam mitigation can offset all of its effects.
- However, gains can be made from where we are currently.

# How can it not be the dams?

- Based on the premise that a hydropower company is willing to spend project revenue to offset project effects, many settlement discussions have concluded with improvements to passage plus habitat funds and hatchery mitigation.



# Recent innovation in fish passage

Wells, Rocky Reach, Rock Island, Wanapum, Priest Rapids

- Use of Computational Fluid Dynamics and integration with fish behavioral models
- Use of acoustic tags technology - route specific info, smaller tags, longer life batteries.
- Adult PIT readers at mainstem dams and many tribs

# Fish passage effectiveness evaluation

- Adult PIT tag readers
- Radio Telemetry
- Acoustic Tags
- Hydroacoustics
- PIT tags
- Hydraulic evaluation to verify design
- Spawning surveys
- Survival studies

# To achieve safe passage

- means that fish are passed with no facility induced injury or mortality.



# To achieve timely passage:

- Delay is the total cumulative time interval it takes fish to volitionally swim into the entrance pool or project tailrace, volitionally swim through entire fishway, and volitionally swim out of the passage facility exit, throughout the range of project conditions.

# To achieve efficient and effective passage:

- Means that fishways will remain operable and working within design conditions through out the entire fish passage design flow range.

# Course Instructors:

- Martin Olden, Pete Bakke, ODFW – Field Trip
- Bryan Nordlund, NMFS – Fish Screen and Bypass Design
- Mike Love, consultant – Culverts and Instream passage
- Matt Mesa – Lamprey passage



# Course Instructors:

- Ken Loffink, ODFW – Upstream Passage
- Lynn Stratton, Pad Murphy, IDFG – Resolving site issues
- Mike Jensen – resolving Operational issues.

Questions?



What did we miss?

