

Tuesday, September 20 DRAFT Agenda

7:00 a.m.-8:00 a.m.: Registration Open and Morning Refreshments

8:00 a.m.-9:45 a.m.: Introduction to Fish Passage (Kozmo Ken Bates, Kozmo, Inc.)

- Course Objective- applying fish passage principles at Northwest hydroelectric projects
- Practical Fish Passage- all fish, all life stages, all the time: resolving potential conflicting conditions required for passage of different species and life stages
- Project Examples Presentation- storage, run-of-river, bypass reach, serial projects
- Fishway Terminology
- Background and Basics of Fish Passage
- Project Scale- why small times two rarely equals big dividend in half

9:45 a.m.-10:00 a.m.: Refreshment Break

10:00 a.m.-12:00 p.m.: Hydraulic Conditions and Biomechanical Ability (Bryan Nordlund, NMFS)

- Applying NMFS' Design Guidance to Specific Projects
- Flow Continuity- $Q=VA$, Q_{in} plus storage occupied = Q out plus storage vacated
- Exceedance Curves- design criteria achieved a minimum of 90% of the passage season
- Orifice Flow Calculation
- Weir Flow Calculation
- Rating Curves
- Fish Passage Physics and Biomechanical Ability- burst, cruise and sustained speeds, fish jumps
- Hydraulic, Behavioral and Math Models- how to fill in what can't be calculated
- Safe, Timely and Effective Passage- measurement of standards

12:00 p.m.-1:00 p.m.: Lunch (on your own)

1:00 p.m.-3:00 p.m.: Upstream Fish Passage (Kozmo Ken Bates, Kozmo, Inc.)

- Overview- integrating biomechanical ability, fish behavior, hydraulic design and power operations to provide upstream passage
- Volitional Passage vs. Trap/Haul
- Fishway Types and Application- vertical slot, pool/weir, Ice Harbor, Denil/Steeppass
- Fishway Component Design- entrance and exit, transport channels, fishway weirs, count stations, off-ladder traps, debris and sediment control
- Expected Fishway Performance- delay, passage rates, fish safety

3:00 p.m.- 3:15 p.m.: Refreshment Break

3:15 p.m.-5:15 p.m.: Downstream Fish Passage (Bryan Nordlund, NMFS)

- Overview- integrating migration corridors, fish behavior, hydraulic design and power operations to collect or pass fish
- Historical Perspectives- what works, what's in development, what's failed
- Considerations for Trap and Haul vs. Volitional Downstream Passage
- Spillway Passage and Survival
- Turbine Passage- components of injury, types of turbines, survival through turbines
- Reservoir Passage- exclusion nets, guide nets, attraction flow
- Positive Exclusion Screens and Bypass Systems
- Surface Collection Schemes
- Safe, Timely and Effective Passage- measurement of standards

Wednesday, September 21 DRAFT Agenda- FERC Licensee Panel Presentations

7:30 a.m.-8:30 a.m.: Registration Open and Morning Refreshments

8:30 a.m.-10:00 a.m.:

- PacifiCorp: Lewis River Project (Erik Lesko and Will Shallenberger)
- Puget Sound Energy: Baker River Project (Nick Verretto and Matt Macartney)
- Tacoma Power: Cushman Project (Keith Underwood and Steve Fischer)

10:00 a.m.-10:30 a.m.: Refreshment Break

10:30 a.m.-12:00 p.m.:

- Portland General Electric: Pelton Round Butte Project (Don Ratliff and Chad Croft)
- Grant County PUD: Priest Rapids/Wanapum Project (Curt Dotson and Dana Jeske)
- Chelan County PUD: Rocky Reach Project (Steve Hays, Steve Hemstrom and Bill Christman)

12:00 p.m.-1:00 p.m.: Lunch (on your own)

1:00 p.m.-2:30 p.m.:

- PPL Montana: Thompson Falls Project (Jon Jourdonnais)
- Farmers Irrigation District: Hood River Project (Les Perkins and Jer Camarata)
- Portland General Electric: Willamette Falls Project (David Heintzman and Tim Shibahara)

2:30 p.m.-2:45 p.m.:

Refreshment Break

2:45 p.m.-4:15 p.m.:

- Eugene Water and Electric Board: Leaburg-Waltermville Project (Mark Zinniker and Lisa Mclaughlin)
- PacifiCorp: North Umpqua Project (Richard Grost and Thomas Hickey)
- City of Albany, OR: City of Albany Project (Jeff Kinney and TBD)

4:15 p.m.-4:30 p.m.:

Q & A and Workshop Wrap-Up