Current Resident Fish Information Relevant to the Reintroduction of Anadromous Fish
Overview

- Entrainment - Grand Coulee Dam
- Lake Roosevelt rainbow trout PIT tag study
- Predation (walleye/smallmouth bass)
- Habitat availability - Colville Reservation
- Rufus Woods habitat and entrainment
- Technologies available to support anadromous fish reintroduction and research
Entrainment

- Range - 211,685 to 576,676/yr
  - Up to 61 fish/hr

- All year – peaks May-Sep

- 87% - third powerhouse
  - Water velocity = 1.6m/s
  - Discharge ≈ 2,265 m³/s

- Power peaking (AM & PM)

- Attractive flow and considerations for passage facility
Lake Roosevelt Elevations 2007-2011

Lake Roosevelt Elevations

- 2007
- 2008
- 2009
- 2010
- 2011

- Deep Draw Down
- Average Draw Down
- Shallow Draw Down
Entrainment

- 2011 – 349 adults PIT tagged (FDX)
  - 8 were detected at Rocky Reach Dam post spawn in same year
  - (2% adult loss, minimum: one adult was from Six Mile Creek)
- 2010-2012 – 1,496 juveniles PIT tagged (FDX)
  - 39 (2.6%) detected at Rocky Reach, McNary, John Day dams, tern colonies at Banks Lake, Potholes reservoir, the mid Columbia (Crescent and Little Miller) and at the mouth of the Columbia (East Sand Island)
- Both juveniles and adults entrain
- Creel clerks below Chief Joseph Dam to scan adult steelhead for PIT tags in 2014.
- Exploring PIT tag array at Chief Joseph Hatchery
  - Document Sanpoil fish returning and potentially move them back to FDR
Smolting RBT From Sanpoil
Rainbow Trout Predation

- Walleye consume:
  - 6,042 age 1 RB/yr
  - 8,403 age 2 and 3 RB/yr

- Smallmouth bass consume:
  - 1,815 age 1 RB/yr
  - 490 age 2 and 3 RB/yr

- Combined consumption:
  - 54% (18–89%) age 1 RB/yr
  - 37% (9–66%) age 2 and 3 RB/yr

Data from Stroud et al. (2010)
Predator Control

- STOI/CCT/WDFW established harvest regulations to address predation impacts
  - Eliminated spawning ground protections
  - Increased bag limits
Predator Control
Habitat Availability/Potential

- ~ 1210 km > 2m bankfull
- ~ 390 km² habitat with medium/high intrinsic potential for anadromy
- Barriers and habitat concerns being addressed
- Diversity of habitat types within basins
- Mean summer high ~ 12-17 °C
- No TN, TP, pH concerns
- Estimated escapement capacity (Parken et al. 2006)
  - Sanpoil River: 48,000
  - Hall, Barnaby, Stranger, Nez Perce creeks: 11,500
Estimated Kokanee Spawning Potential

- **Mainstem Sanpoil**
  - 238,000 @ 0.7 fish/m
  - 1.7 million @ 5 fish/m

- **West Fork Sanpoil**
  - 10,000 @ 0.7 fish/m
  - 73,000 @ 5 fish/m

- **Lake Roosevelt provides nursery lake for sockeye!**
Technologies Available to Support Reintroduction of Anadromy
PIT Tag Arrays
Acoustic Telemetry Array
Questions?