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Evaluate of Steelhead Kelt Migration Success through The Dalles and Bonneville Dams, 2012

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Goals

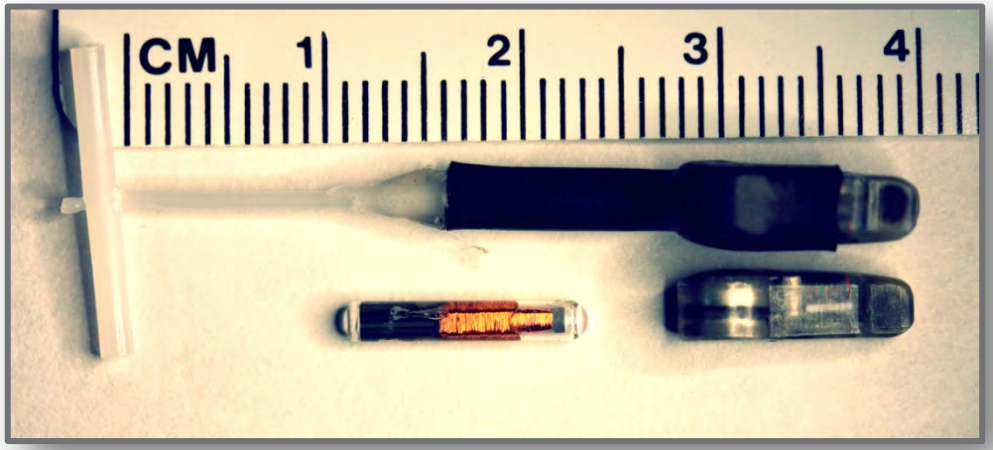
- Estimate route of passage of steelhead kelt to assist managers in assessing powerhouse priority at Bonneville Dam

- Assess operation of the sluiceways at The Dalles and Bonneville Dams

Research Objectives

- Estimate route-specific passage proportions of steelhead kelts at The Dalles Dam (spillway, sluiceway, and turbine)
- Estimate route-specific passage proportions of steelhead kelts at Bonneville Dam
- Estimate virtual single-release passage migration success rates for steelhead kelt passage at The Dalles and Bonneville dams (dam and route specific)

External JSATS AT Design



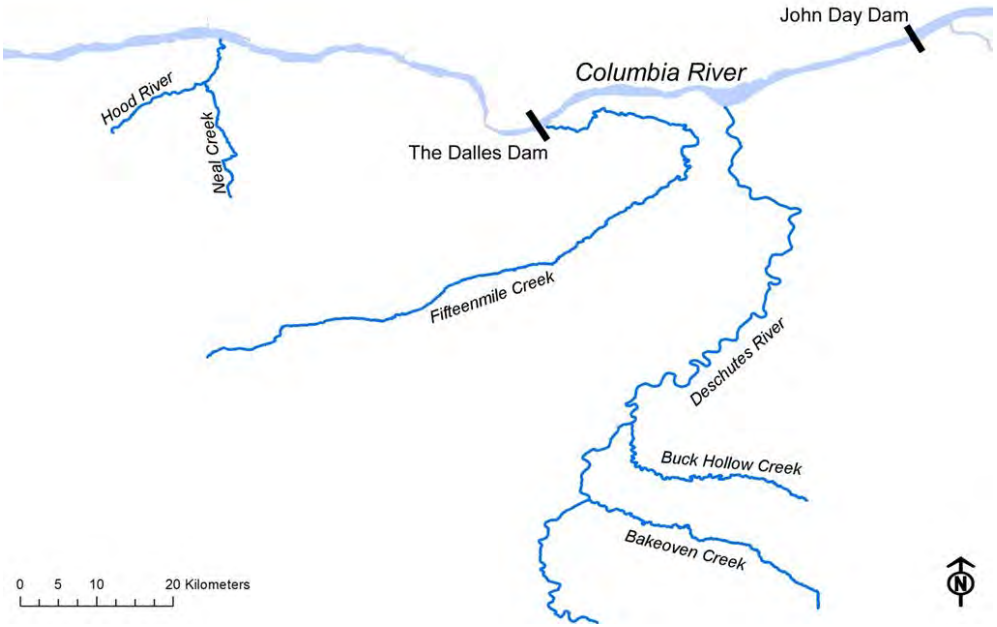
- Floy Tag
  - FD-94 EX-Wide T
  - 35 mm long
- JSATS AT Dimensions
  - 12.00 mm x 5.21 mm x 3.77 mm
  - 0.438 g in air, 0.29 g in water
- Final Size
  - 42 mm long

Preliminary Tagging Effort

- Oak Springs Hatchery
- Rainbow trout
  - 10 Externally tagged
  - Held for 65 days
- 0 tags dropped
  (Cut tags off fish at end of study)

Tagging Sites

- Deschutes River
  - Bakeoven Creek
  - Buck Hollow Creek
- Fifteenmile Creek
- Hood River
  - Neal Creek



ODFW Kelt Traps

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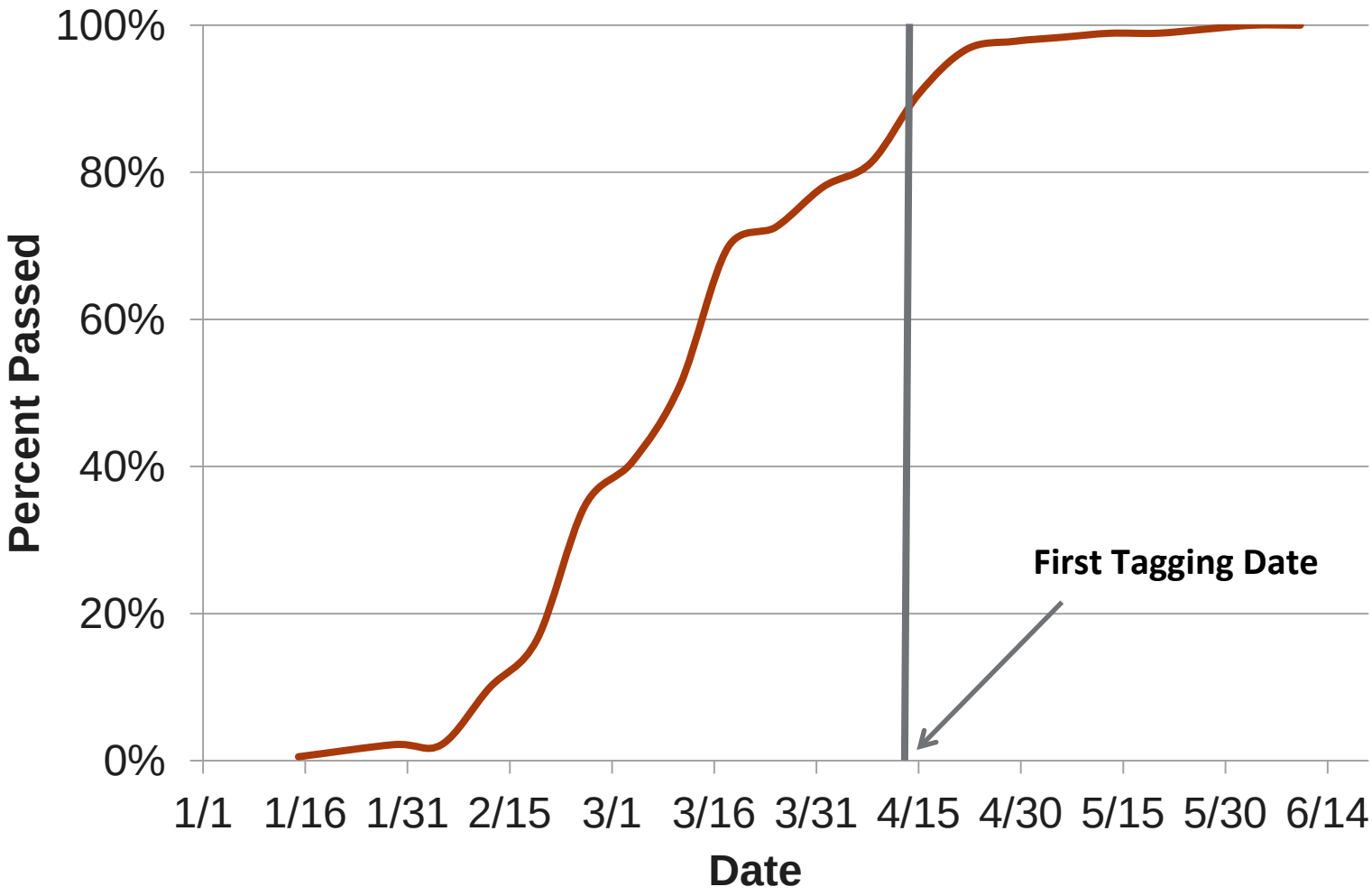
In-Season Tagging

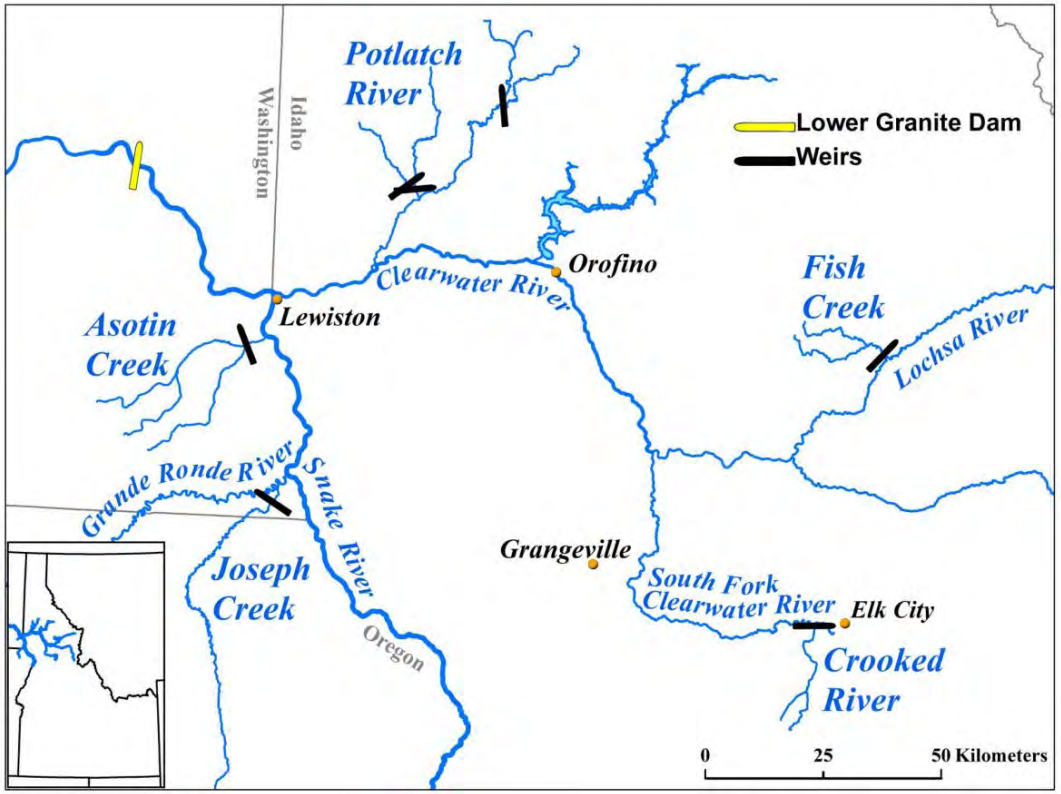
- April 12 – June 4, 2012
- Tagged 58
- Wild – 51, Hatchery – 7
- 50 Female: 50 Male
- Fork length
  - 51 – 86 cm
  - Average – 67 cm
- Run Timing
  - Tagged last 10% of run

Run Timing


100%
80%
60%
40%
20%
0%
Percent Passed
First Tagging Date
1/1
1/16
1/31
2/15
3/1
3/16
3/31
4/15
4/30
5/15
5/30
6/14
Date

Snake River Tagged Kelt

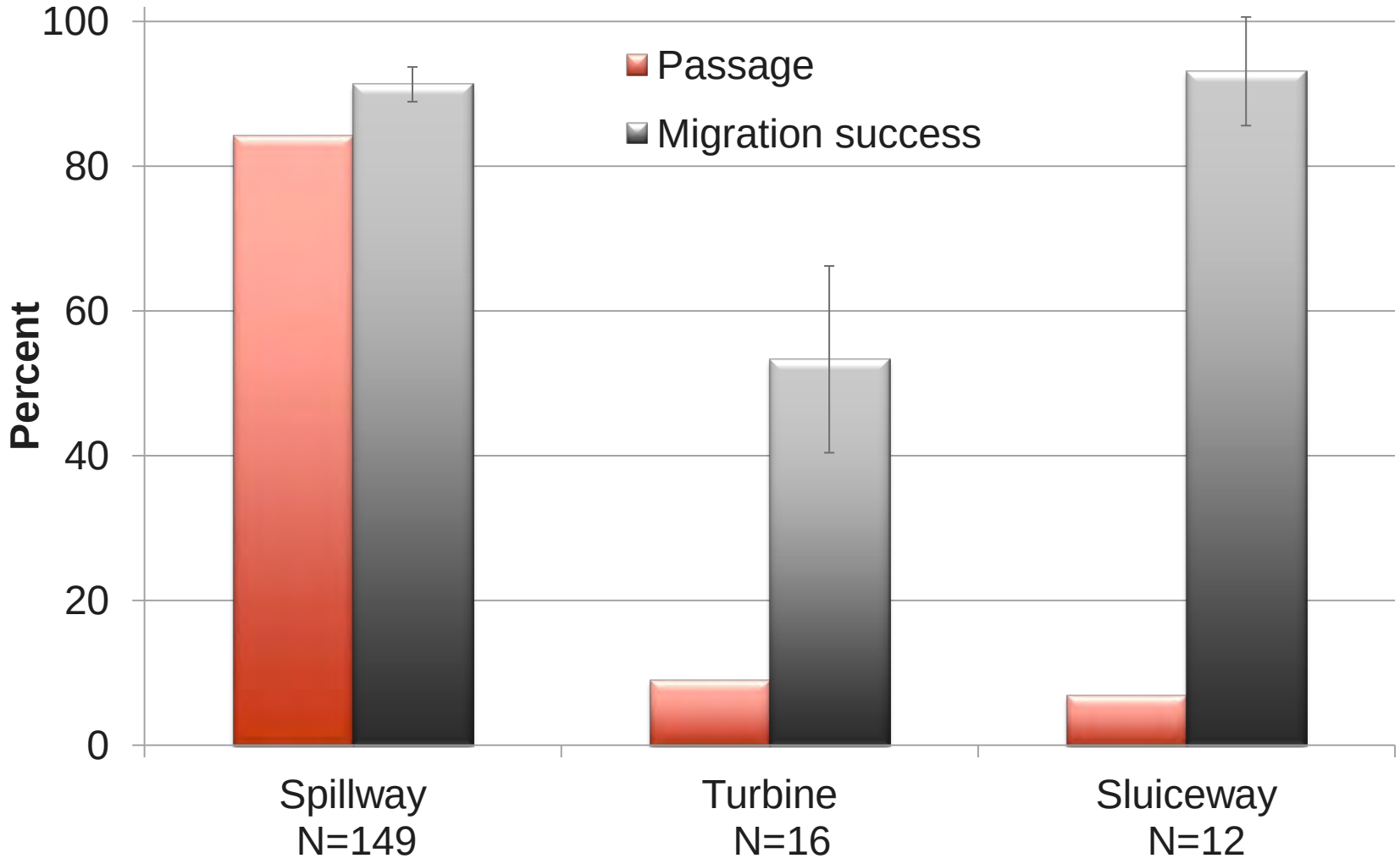
- Tagged 4/18-6/24
- 324 Kelt Tagged
  - Detected
    - 163 at TDA
    - 138 at BON



The Dalles Dam Passage Metrics

Passage Metric	Estimate
FPE	0.910
SPE	0.842
SLE_PH	0.429
SLEFF_PH	19.4

The Dalles Dam Passage & Migration Success



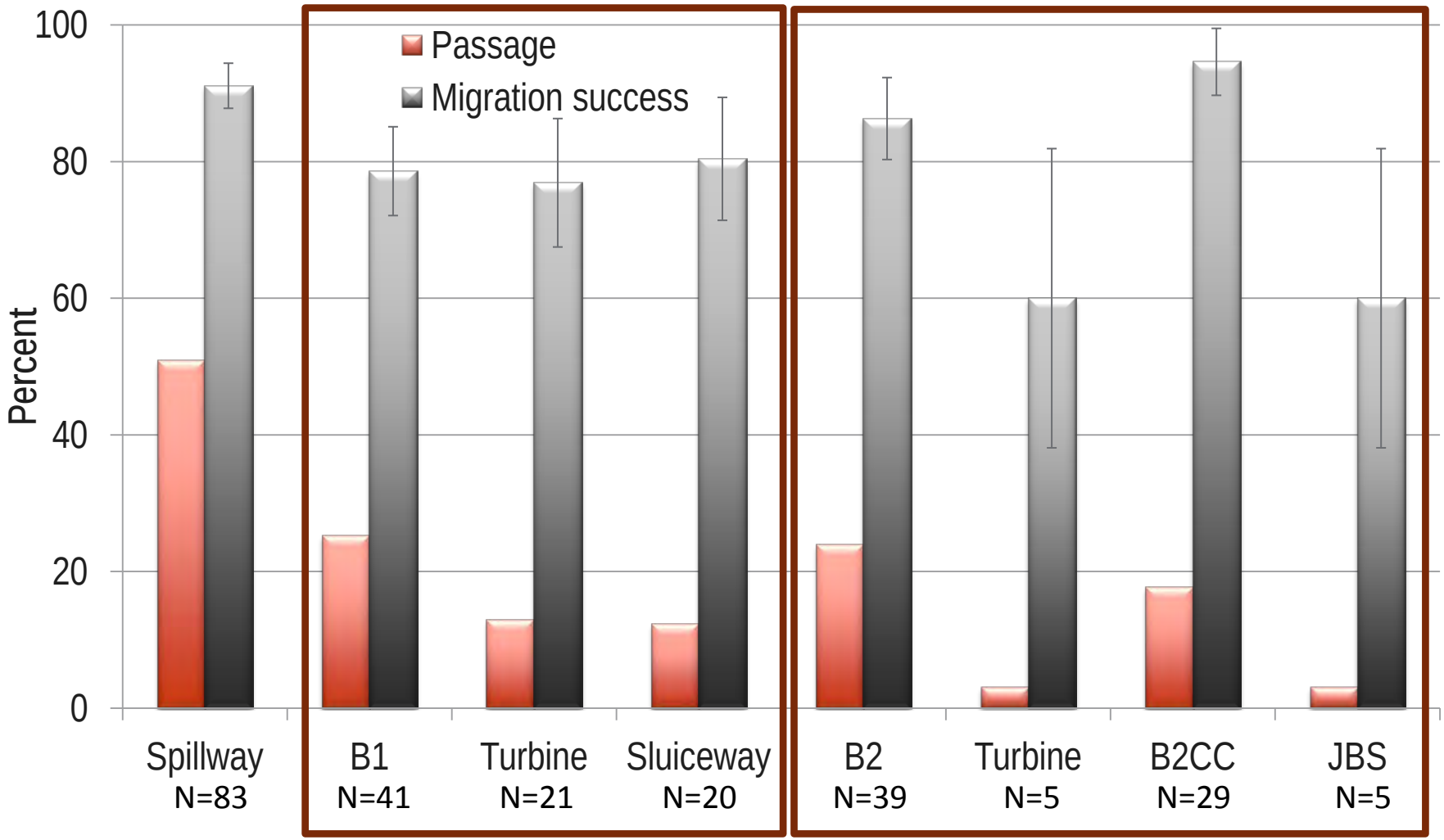
Bonneville Dam Passage Metrics

Passage Metric	Estimate
FPE	0.840
SPE	0.509
B1 FPE	0.488
B2 FPE	0.872

Bonneville Dam Passage Metrics by PH

Passage Metric	Estimate
SLE_B1	0.488
SLEFF_B1	26.8
SLE_B2	0.744
SLEFF_B2	16.5

Bonneville Dam Passage & Migration Success



Summary

- Tests suggested high retention of external tag
- 90% of outmigration prior to tagging effort (N=58), included Snake River tagged fish (N=324)
- High SLEFF and sluiceway migration success at TDA

Summary

- High SLEFF but lower SLE and sluiceway migration success through the B1sluiceway
- High SLEFF, SLE, and sluiceway migration success through the B2 corner collector

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