



Rock Island Spillway notched gate

(Gate Open)



Rock Island normal fish passage operation



Rocky Reach monitoring, evaluation and results



Rocky Reach Bypass outfall to tailrace

RR Fish Bypass Operations

- Operates continuously April 1 – August 31
- Sampling Facility: Daily index counts, fish condition
- Season-wide run timing and diel dam passage timing
- Informs Fish Spill decisions
- Collection of smolts for HCP survival studies



Fish Species: Yearling Chinook
Fish Length: 175 mm
Tag Type Shown: "E"



Fish Species: Sockeye
Fish Length: 127 mm
Tag Type Shown: "A"



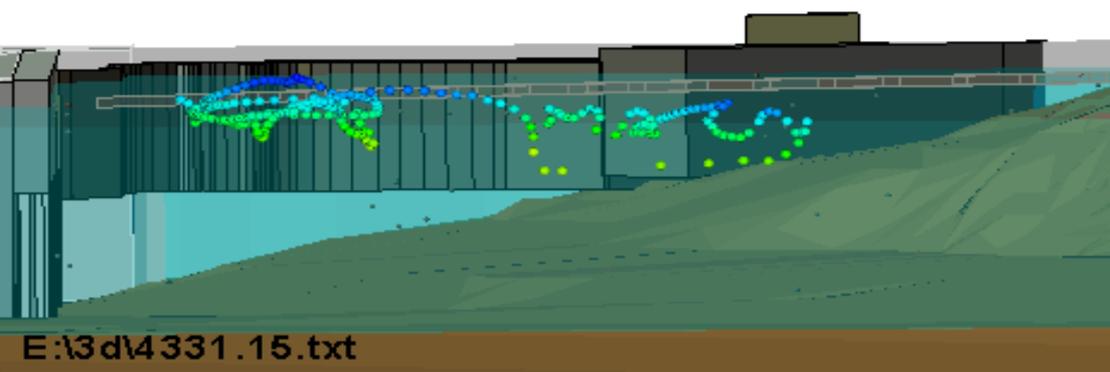
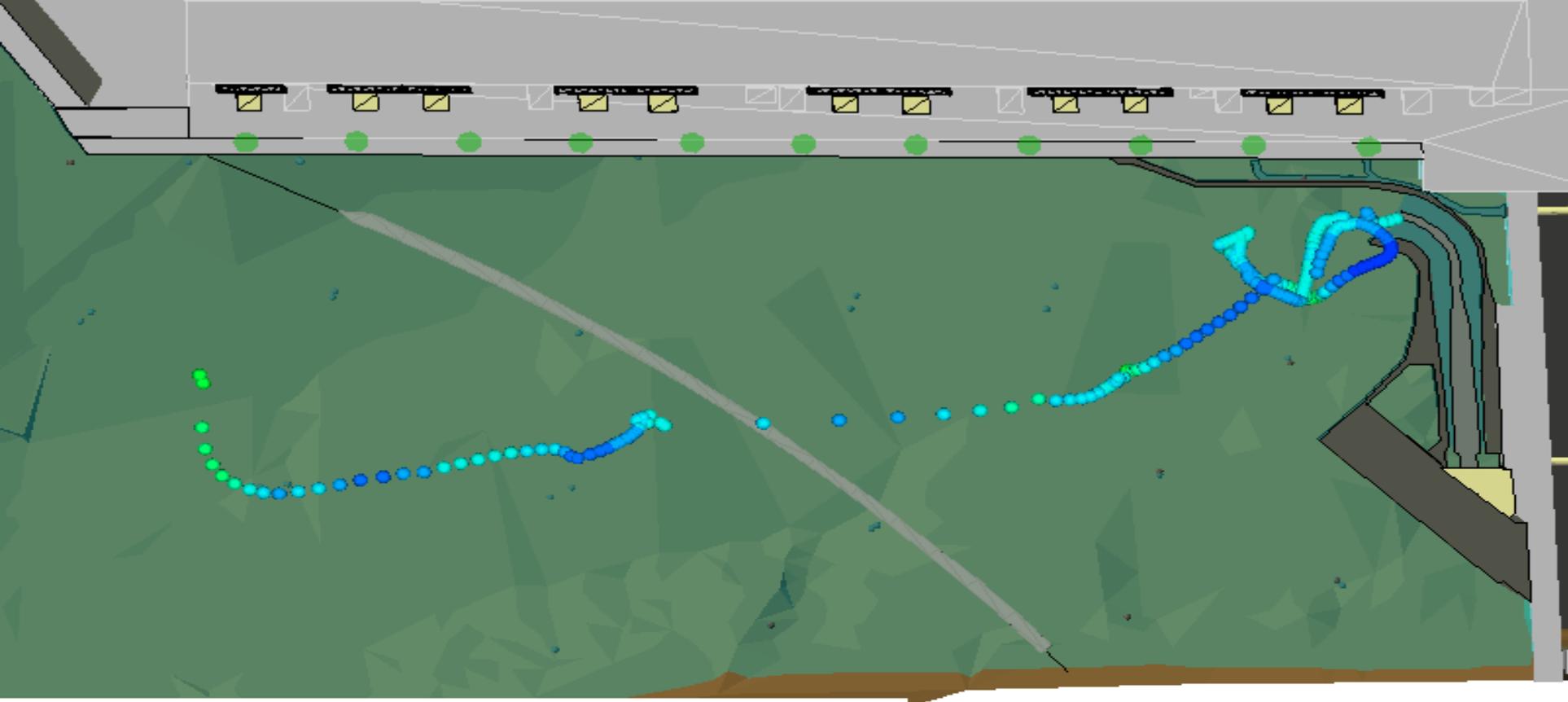
Fish Species: Steelhead
Fish Length: 175 mm
Tag Type Shown: "E"



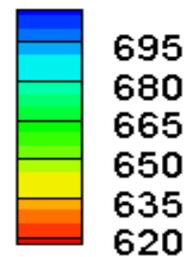
Fish Species: Sub-Yearling Chinook
Fish Length: 100 mm
Tag Type Shown: "A"



Surface Collector Entrances 20' W x 57' D



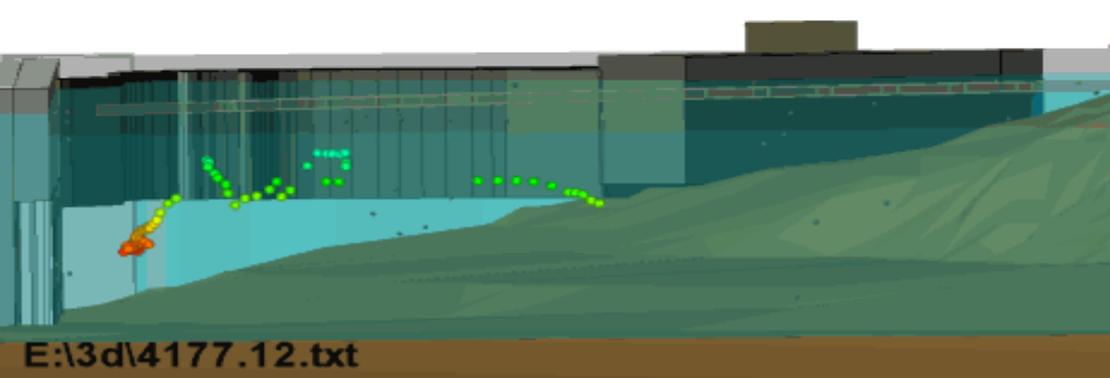
Elevation (ft)



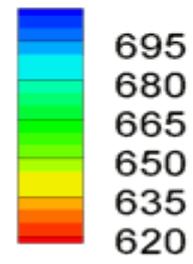
CHELAN COUNTY



HTI
HYDRO-COUSTIC
TECHNOLOGY, INC.

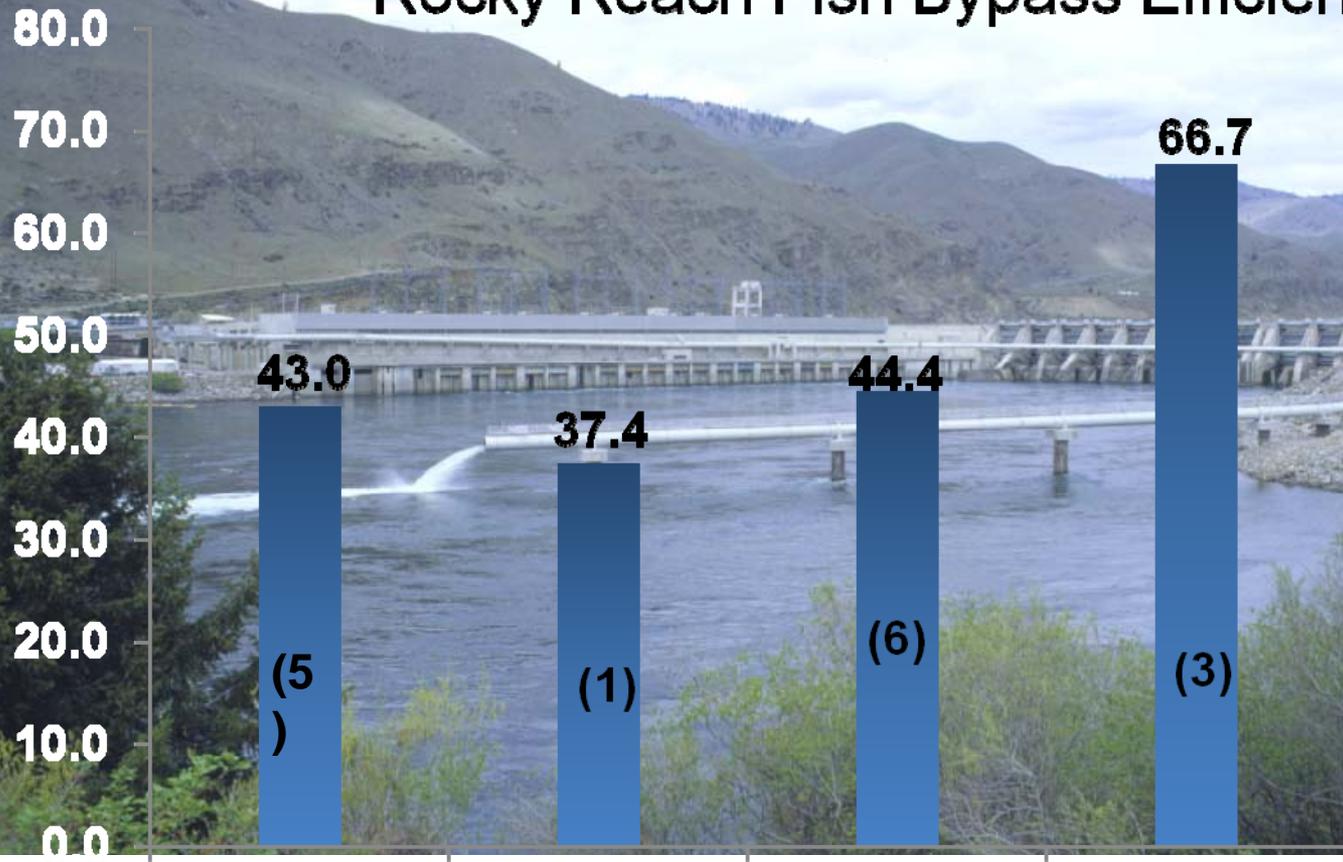


Elevation (ft)



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Rocky Reach Fish Bypass Efficiency



Yearling
Chinook

Subyearling
Chinook

Sockeye

Steelhead

... In Summary

- Envision - model - prototype - test - build - refine
- RR Bypass and RIS spill gates key to juvenile survival
- All passage routes important:
 - smooth, fast, predator free
- RRH and RIS achieving HCP Survival Standards
- Success: Align goals and maintain relationships



Thompson Falls Fish Passage Project

Presented By:

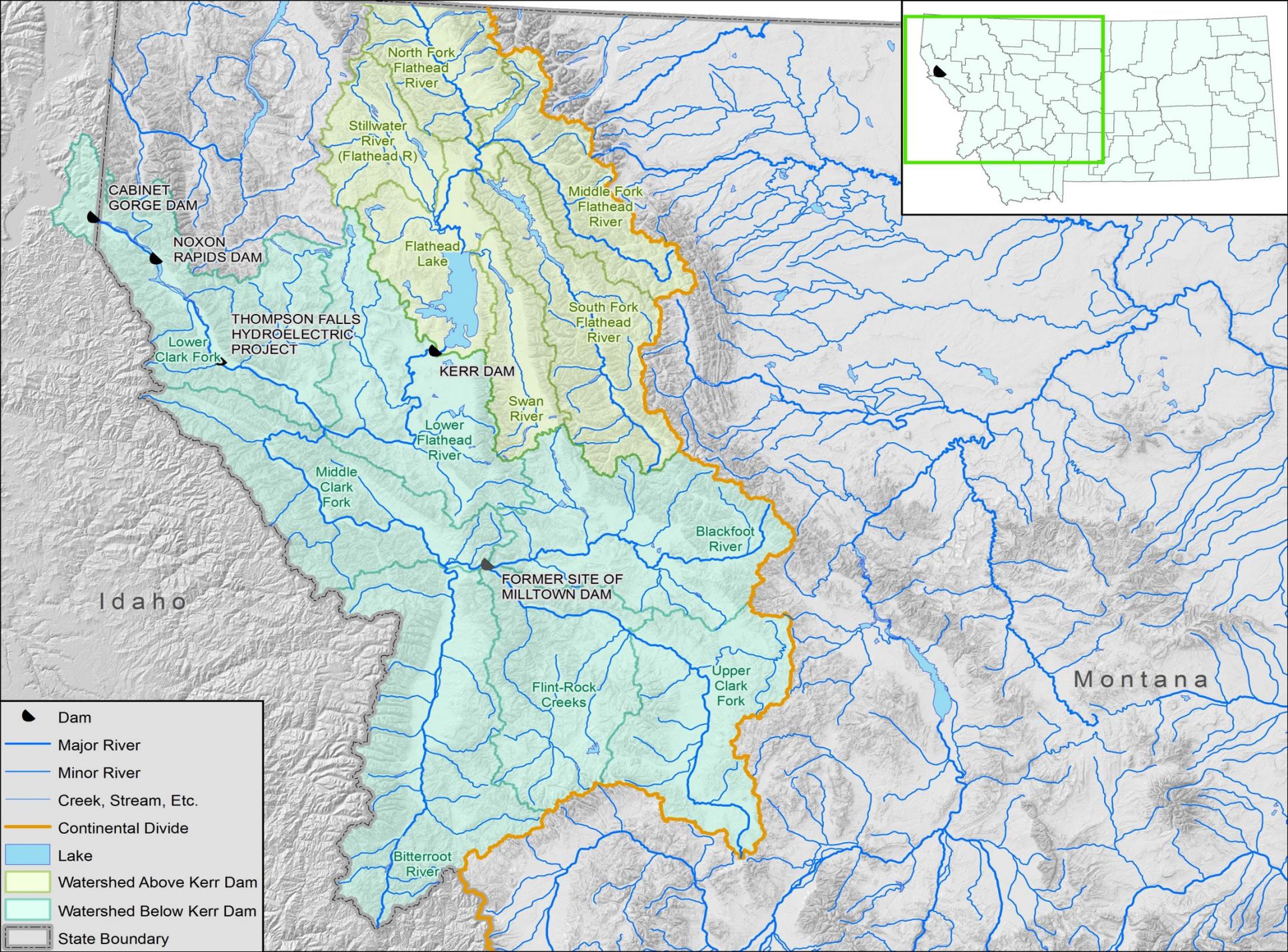
Jon Jourdonnais, PPL Montana

Ginger Gillin, GEI Consultants, Inc

Carrie Harris, PPL Montana

Thompson Falls Dam, Montana

- PPL Montana, IPP, merchant generator
- 2 Dam segments span Clark Fork River
- Constructed 1917, presently 93 MW
- FERC licensed 1979, Amended 1990, Expires 2025 (relicensing begins 2020)
- **No federal action at Project** to initiate Section 7 ESA consultation since bull trout listing in 1999
- Upstream: Milltown Dam is removed
Downstream: 2 Avista dams pursuing passage



- Dam
- Major River
- Minor River
- Creek, Stream, Etc.
- Continental Divide
- Lake
- Watershed Above Kerr Dam
- Watershed Below Kerr Dam
- State Boundary

Thompson Falls Project Features



Main Channel Dam

Dry Channel Dam

Powerhouse unit 7

Powerhouse units 1-6

Prospect Creek

Main Channel Dam



Fish Ladder location

TFalls ladder opens 274 upstream miles of upstream Clark Fork River (and its tributaries) to migrant bull trout and other fishes

Process to Final FERC Order

- Based on draft 2003 PPLM BE to Commission, PPLM implements a detailed Fish Passage & Conservation Measures Study, 2003 to 2008:

Conclusion: TFalls Dam Likely to Adversely Effect Bull Trout, due to:

- Blocked upstream fish passage
- Reduced downstream fish passage (marginally affected)
- Bull predation in TFalls Reservoir
- Total dissolved gas (incremental increase)

- | | |
|--|-------------------|
| ▪ Final PPLM BE to Commission | April 2008 |
| ▪ Commission BA to USFWS | May 2008 |
| ▪ USFWS BO to Commission | Nov 2008 |
| ▪ Commission Order Approving Fish Passage & Conservation Plan | Feb 2009 |

Formal Stakeholder MOU

- Convened Interagency TFalls Technical Advisory Passage Committee (TAC):
 - **PPL Montana**
 - GEI Consultants
 - U.S. Fish & Wildlife Service
 - Montana Fish, Wildlife, & Parks
 - Confederated Salish & Kootenai Tribes
 - Avista
 - Montana Dept. Environmental Quality
- Consultation process for Final Fish Passage Plan
- PPLM funding and compliance schedule commitments
- Ramp up to TFalls Project relicensing beginning 2020

General TFalls Fish Passage Plan Terms and Conditions

(to exempt from “take” provisions of ESA Section 9)

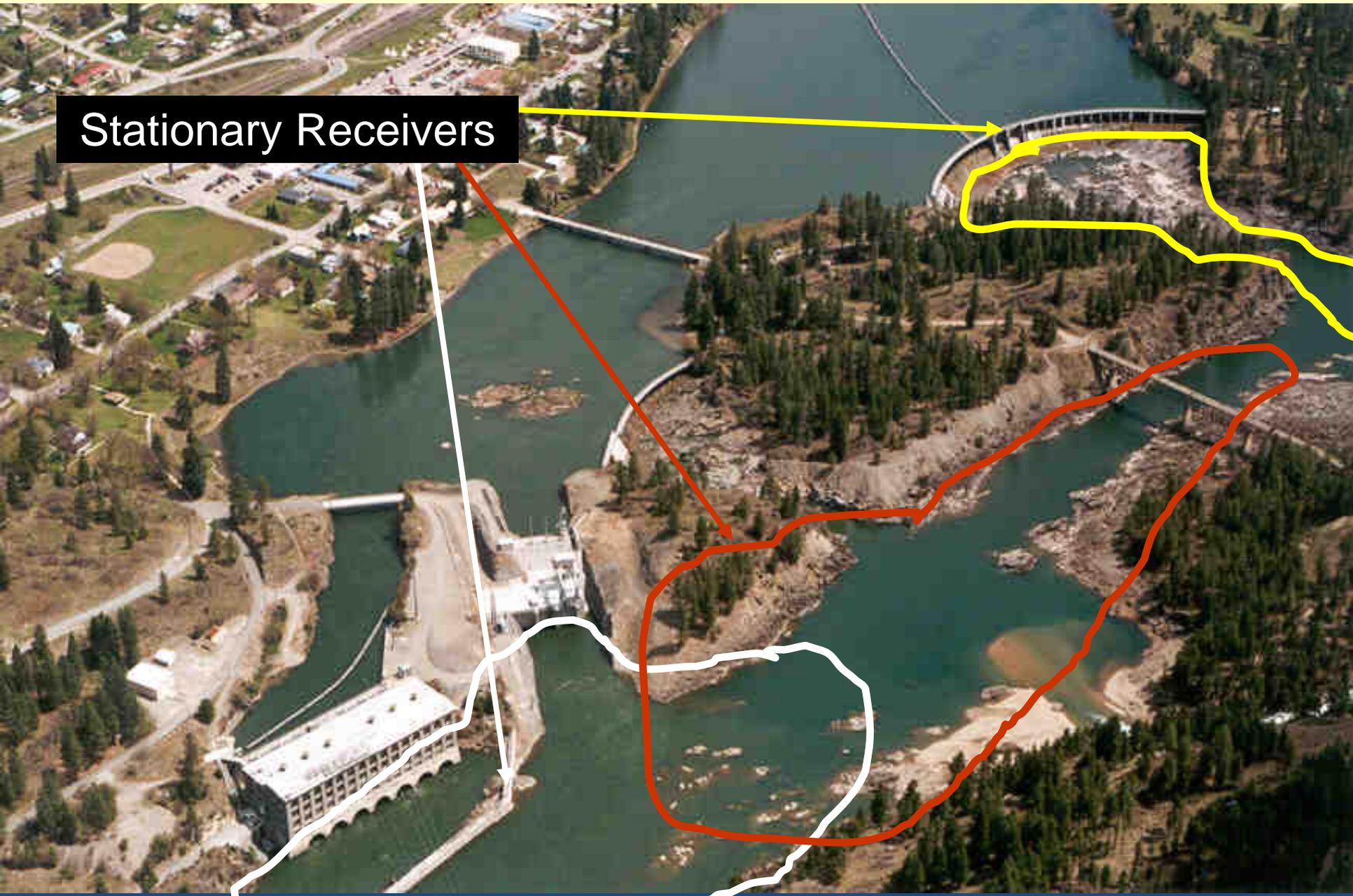
- Provide effective upstream passage
- Provide effective downstream passage
- Reduce TDG effects on bull trout
- Facilitate TAC implementation via MOU
- Reduce predation effects in TFalls Reservoir
- Monitor/evaluate bull trout recovery
- Provide timely science & compliance reporting

Fish Passage Planning Studies

- **Passage Desirable?**
 - Disease concerns
 - Fish Genetics & Native Species Concerns
- **Where and How to Implement Passage**
 - Fish Behavior
 - Engineering Feasibility
 - Design Alternatives Evaluation

Radio Telemetry Study

Stationary Receivers



Main Dam Spillway





Right Bank



05/23/2006 11:55

Left Bank Location

