

# DEVELOPMENT OF A FLOATING PIT TAG ANTENNA DETECTION SYSTEM



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# McNary Dam Columbia River

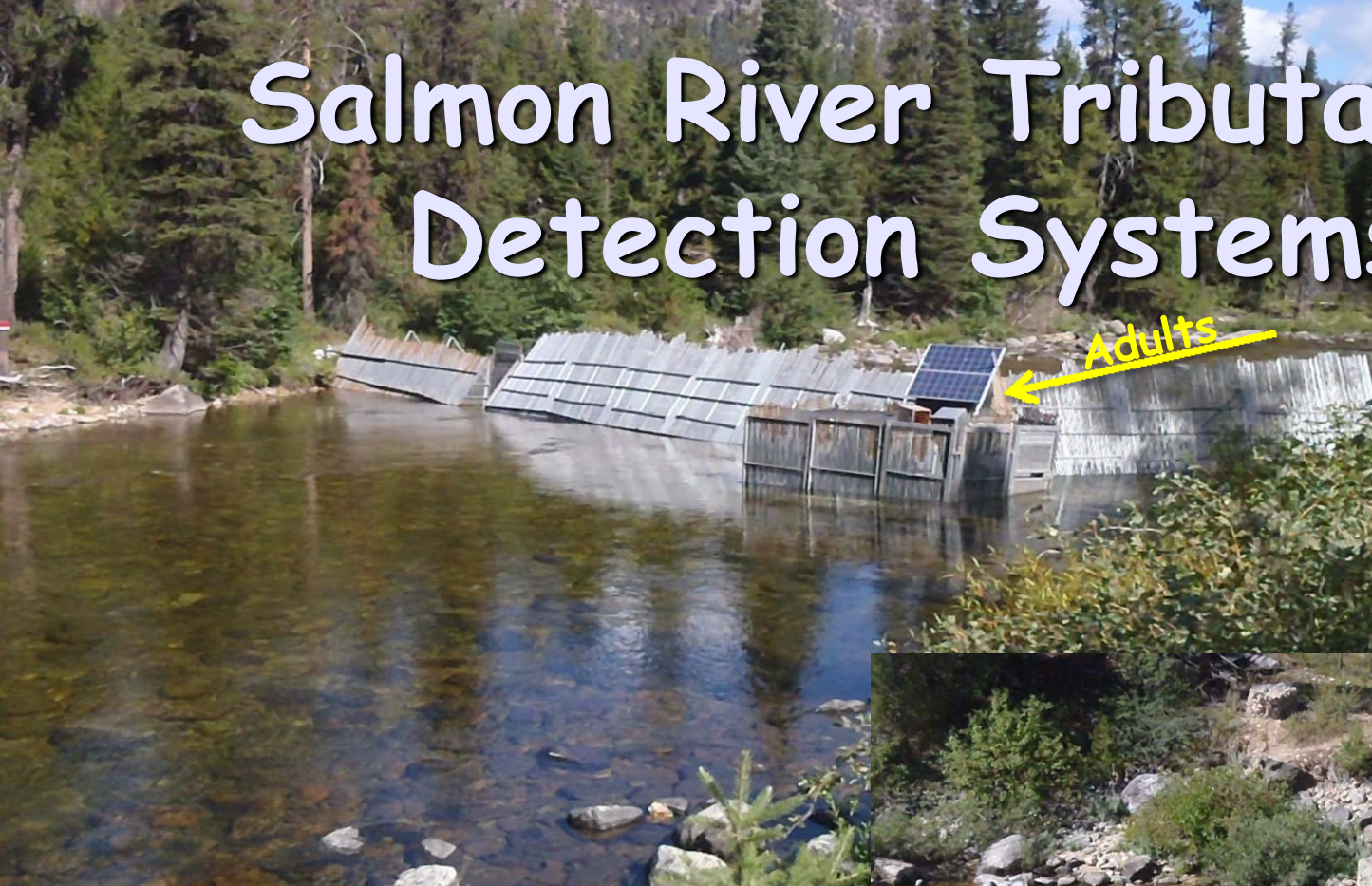


## Columbia River Fish Passage and Detection Systems





# Salmon River Tributaries Detection Systems



- Passage rates
- Movements
- Survival
- Return rates





# Flat Plate Detection System





# Electrofishing

- Capture history
- Location
- Known tag
- Biological data (length, weight, condition)
- Population estimates

- Labor intensive
- Expensive
- Unknown future





# Prototype 2008

Multiplexer, battery, PC

Round antennas (5)





# Antenna Construction

## Jacks Plastic Welding, Aztec, NM

- Three antennas
- 9 feet long
- Giant PACO Pads
- Internal antenna



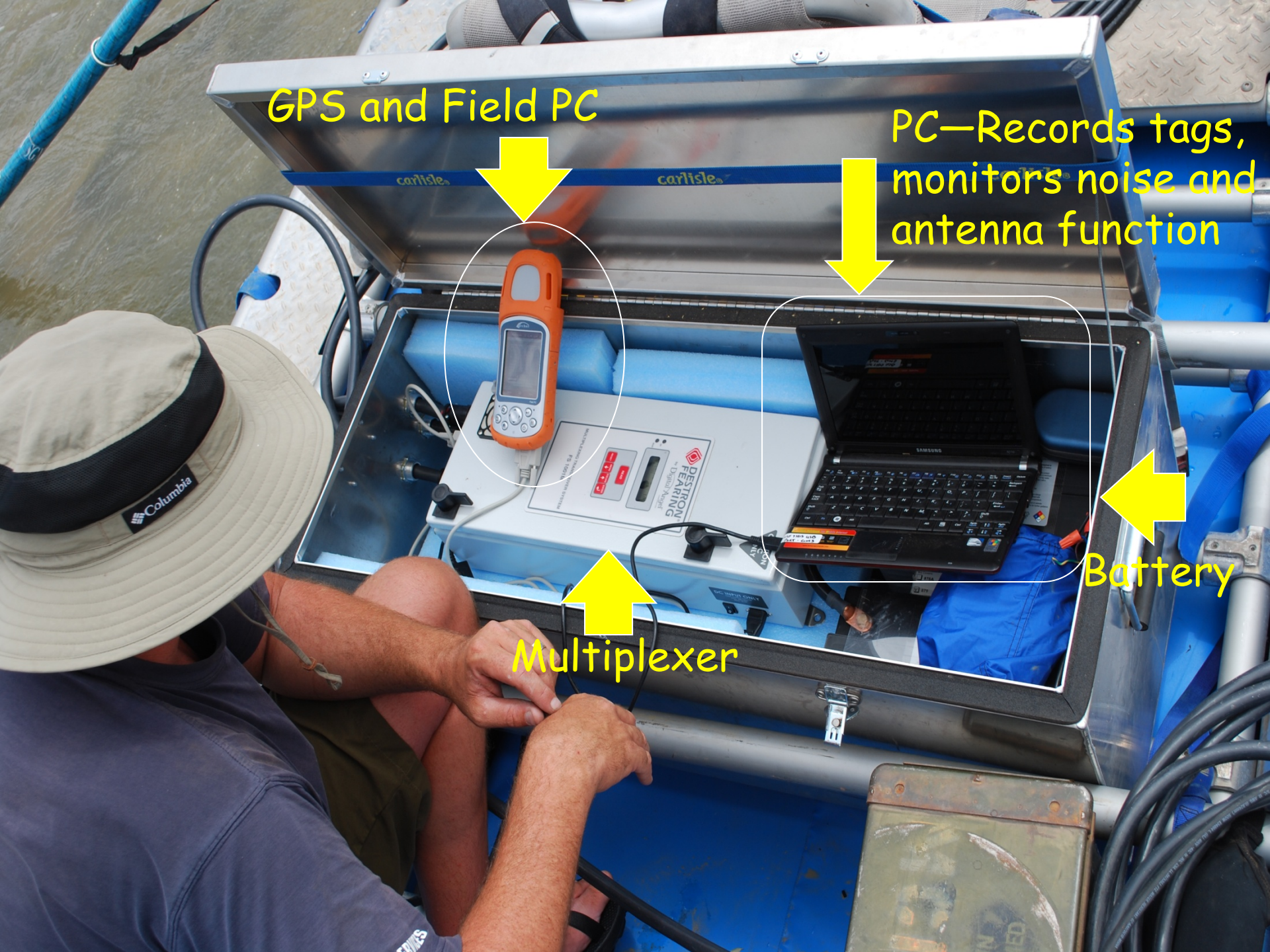


GPS and Field PC

PC—Records tags,  
monitors noise and  
antenna function

Multiplexer

Battery





# FLOATING PIT TAG ANTENNA DETECTION SYSTEM



- Portable
- Float over fish
- Location
- Date, Time





35 feet

24 inch depth maximum



# Results

- July 2010
  - 1 day, 5 miles, 600 cfs
  - 7 tags
  - 2 antennas working
  - Interference with aluminum frame
- October 2010
  - 2 days, 20 miles, 500 cfs
  - 75 tags
  - ~25 tags in tributary
  - 3 antennas working
  - No interference with frame



# Tributaries

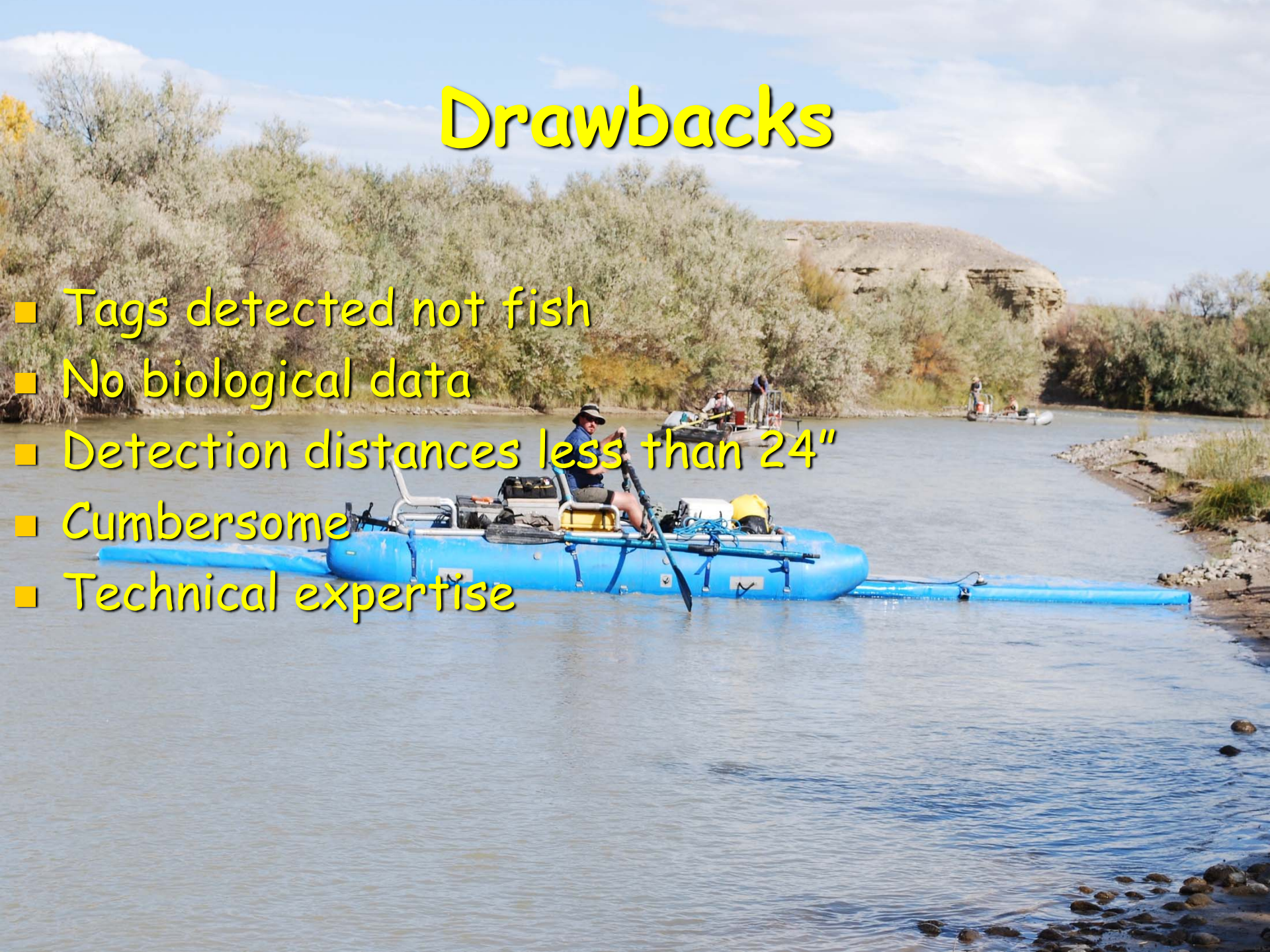
## Chaco Wash





# Drawbacks

- Tags detected not fish
- No biological data
- Detection distances less than 24"
- Cumbersome
- Technical expertise





# PNM Weir (Mile 167)





# Hogback Fish Passage (Mile 159)





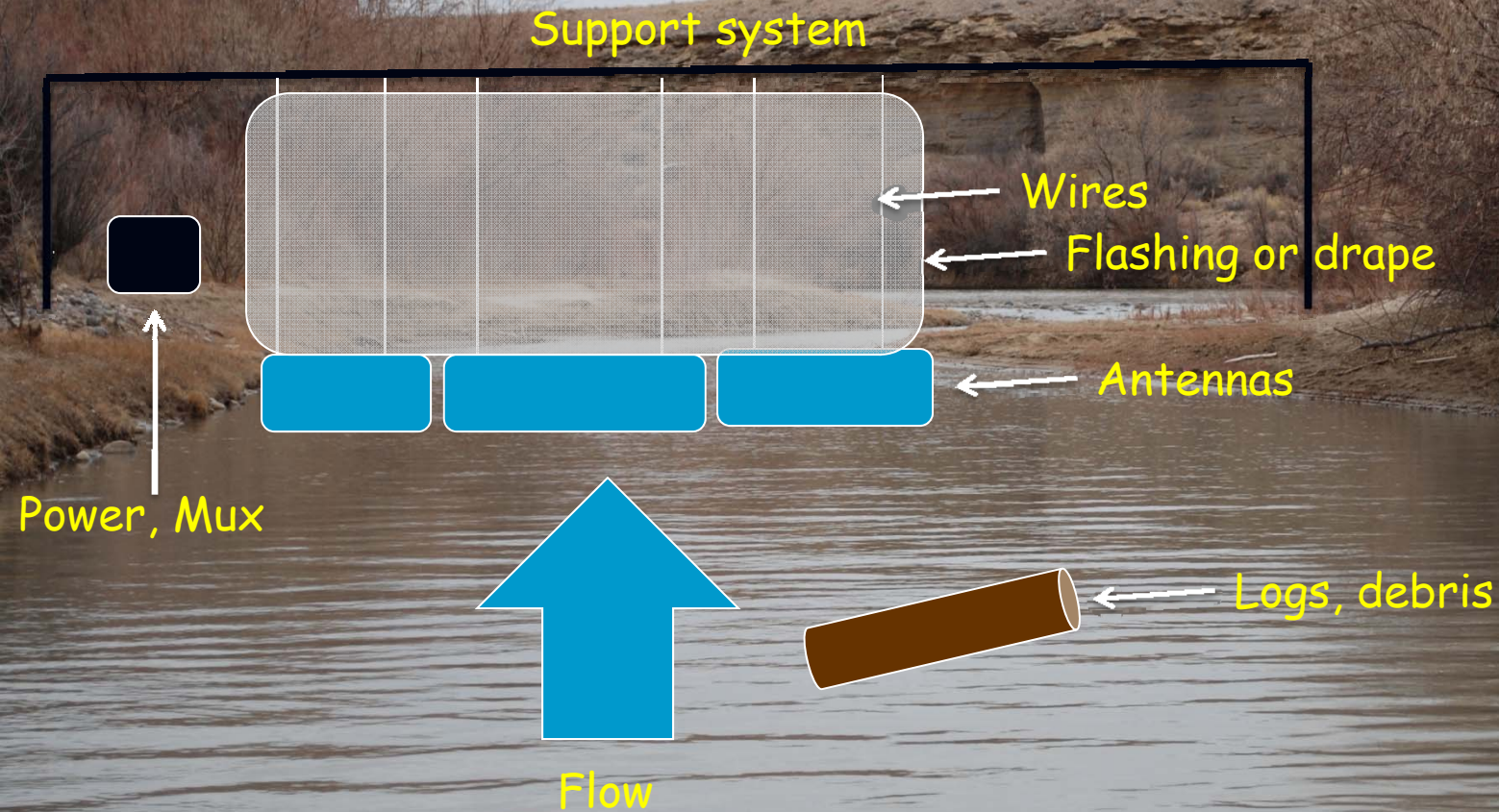
# San Juan River Waterfall (Mile 0)

Floating Antenna ??





# Floating Stationary Antenna Systems





# Acknowledgments and Partners

- San Juan Recovery Implementation Program
- Bureau of Reclamation Science and Technology Program
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