

# DEVELOPMENT OF A FLOATING PIT TAG ANTENNA DETECTION SYSTEM

A person wearing a blue shirt and a hat is sitting in a blue inflatable boat on a river. The boat is equipped with various gear, including a white cooler and a yellow bag. A long, blue, cylindrical antenna boom extends from the boat across the water's surface. The background shows a riverbank with dense, green and brown vegetation.

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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



Battery



Multiplexer



# FLOATING PIT TAG ANTENNA DETECTION SYSTEM



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





35 feet

24 inch depth maximum

# Results

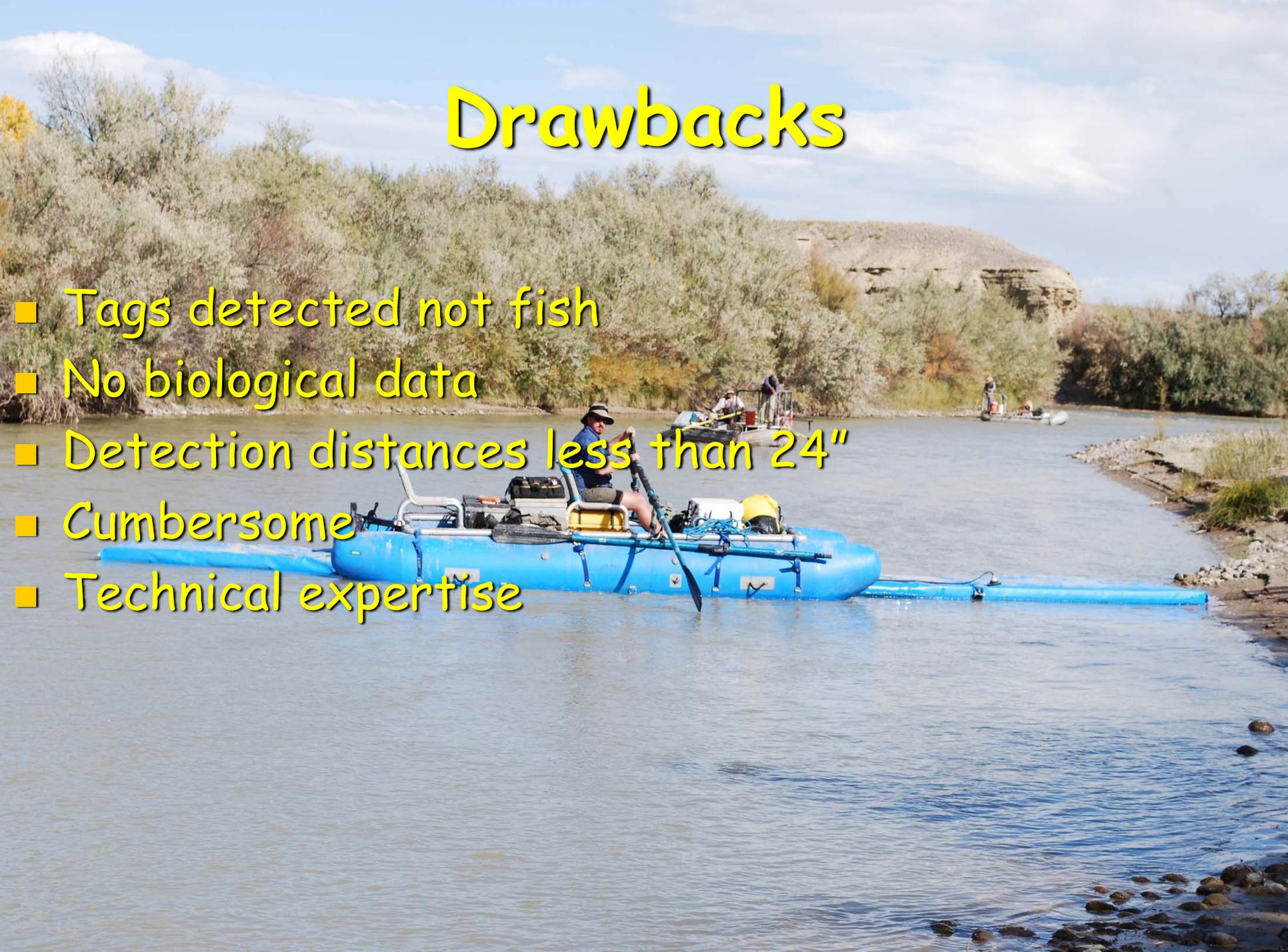
- July 2010
- 1 day, 5 miles, 600 cfs
- 7 tags
- 2 antennas working
- Interference with aluminum frame
- October 2010
- 2 days, 20 miles, 500 cfs
- 75 tags
- ~25 tags in tributary
- 3 antennas working
- No interference with frame

# 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

Support system

Wires

Flashing or drape

Antennas

Logs, debris

Power, Mux

Flow



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