

Yakima River Hooking Mortality

A wide, shallow river flows through a lush, green forest. The water is a deep blue-grey color, reflecting the sky. The banks are lined with dense trees and shrubs, some showing early autumn colors. The sky is a clear, bright blue with a few wispy white clouds. The overall scene is peaceful and natural.

Anthony Fritts, Cade Lillquist, and Gabriel Temple

Ecological Interactions Team

Washington Department of Fish and Wildlife

Purpose

- Estimate long-term mortality of spring Chinook salmon caught and released in the fishery below Roza Dam
- Standard 10% rate currently used
- Potential use for take estimates in other fisheries with ESA considerations

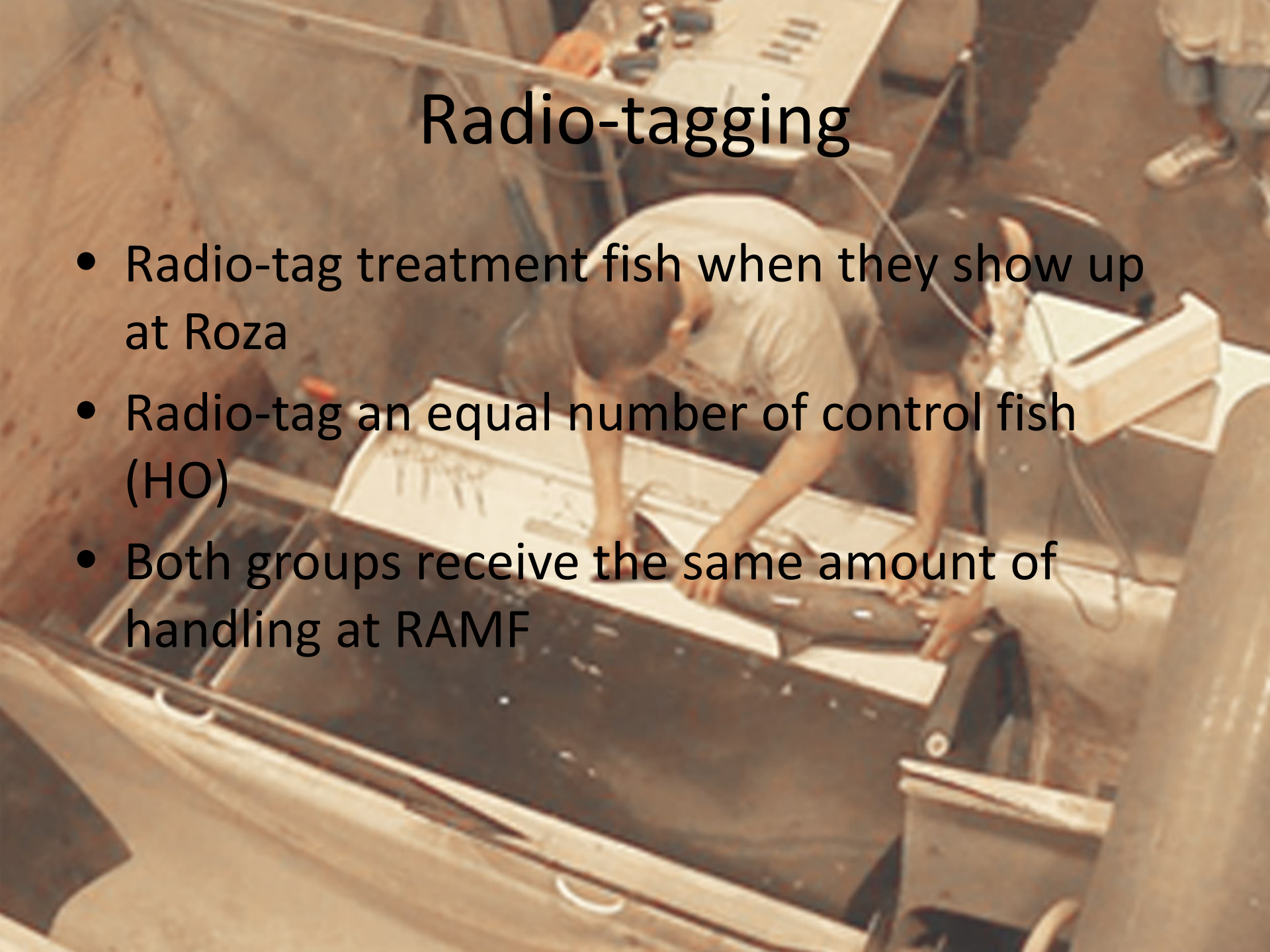
Fishery

An aerial photograph of a river system in a dry, hilly landscape. The river flows through a valley, forming a large loop. In the center of the loop, there is a dam structure with a bridge crossing over it. The surrounding terrain is brown and rocky, with sparse vegetation. The sky is not visible, and the overall scene is captured from a high angle.

- Anchor-tag Chinook salmon in fishery below Roza Dam as they are caught
- Record where fish is hooked, severity of bleeding, gear type, play time

Radio-tagging

- Radio-tag treatment fish when they show up at Roza
- Radio-tag an equal number of control fish (HO)
- Both groups receive the same amount of handling at RAMF



Tracking

- Track tagged fish through spawning to determine ultimate fate
- Snorkel to determine if holding fish are alive



Analysis

- Used Sept. 1 as beginning of spawning
- Mortalities were fish that were found dead or dropped well downstream of historic spawning areas prior to Sept. 1
- Hooking mortality calculated as $1 - P_{ts}/P_{cs}$

2012 Results-Fishery

- Anglers were instrumental in effort
- 107 adults and 14 jacks anchor tagged in fishery
- Jacks were not radio tagged at Roza because of size and are not included in analysis



2012 Results-Mortality

- Mortality of treatment fish from Roza to spawning was 11% higher than controls
- Only 75% were recaptured at RAMF*
- No controls for this short stretch of river

9/23/03 N M-4 sc 9



2013 Methods

- PIT-tagged and radio tagged fish as soon as they are caught below Roza Dam using portable electroneurosis unit
- Tagged HO controls at Roza using electroneurosis
- Released subsample (N=26) of HO controls below Roza Dam



2013 Results

- Tagged 70 adults below Roza
- 85% made it over Roza (92% of controls)
- 74% T & 82% C survived to 9/1
- 9.8% mortality
- Revised method allowed us to account for treatment fish below Roza

Current

- Repeating 2013 methods for final year of study
- 116 adults tagged as of 6/17
- 3 have been detected in the Naches River

Acknowledgements

- Mark Johnston and his crew (Yakama Nation) at RAMF tagged fish at Roza and provided helpful suggestions to improve the study
- Jeff Bates, Kyle Hatch, Alex Hedrick, Seth Shy, and Tommy Wachholder tagged fish below Roza and tracked to spawning; Scott Coil, Trenton De Boer, Zack Lessig, Nick Mankus, Zack Mays, Rochelle Polacek, and Tim Webster assisted with tracking
- Funding was provided by the CRSSAB fund