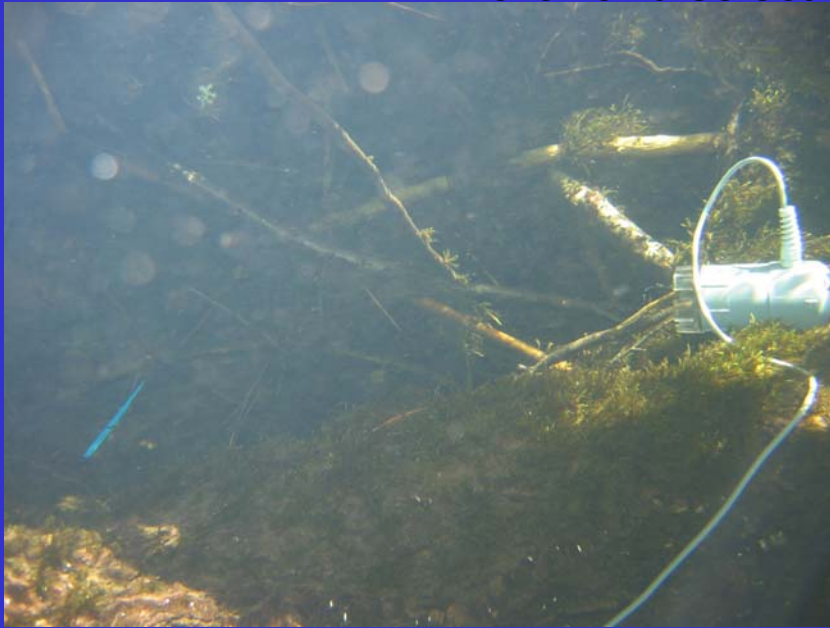


Use of Video Technology to Investigate Hatchery and Wild Fish Interactions and Hatchery Fish Behavior

(This presentation has audio commentary if you have speakers. If not, right click and select speaker notes).



Rod Engle and Tom Hoffman
Hatchery Assessment Team - Ecological Interactions
US Fish and Wildlife Service
Columbia River Fisheries Program Office



Why Use Underwater Video for Hatchery Assessment or Hatchery/Wild Fish Interactions?

- Saves time in certain studies.
- Little effort setting up equipment to use.
- Fairly inexpensive depending on quality of recording.
- Little effort in reviewing video.
- Potential for reducing fish handling in certain studies.



Doug Olson, USFWS, with underwater video camera.



Video Camera

- mounted on 1ft. Tripod with pipe flange/hose clamps.
- \$515



Equipment

- cable, boat battery, alligator clamps, inverter, VCR (\$150) or digital recorder (\$1100), and hand-held video camera (\$300-\$800).

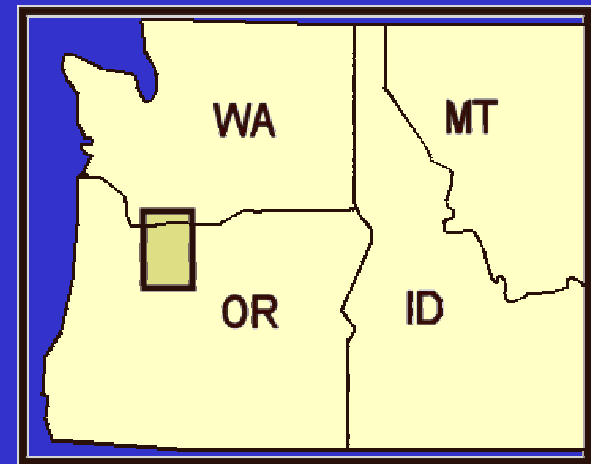
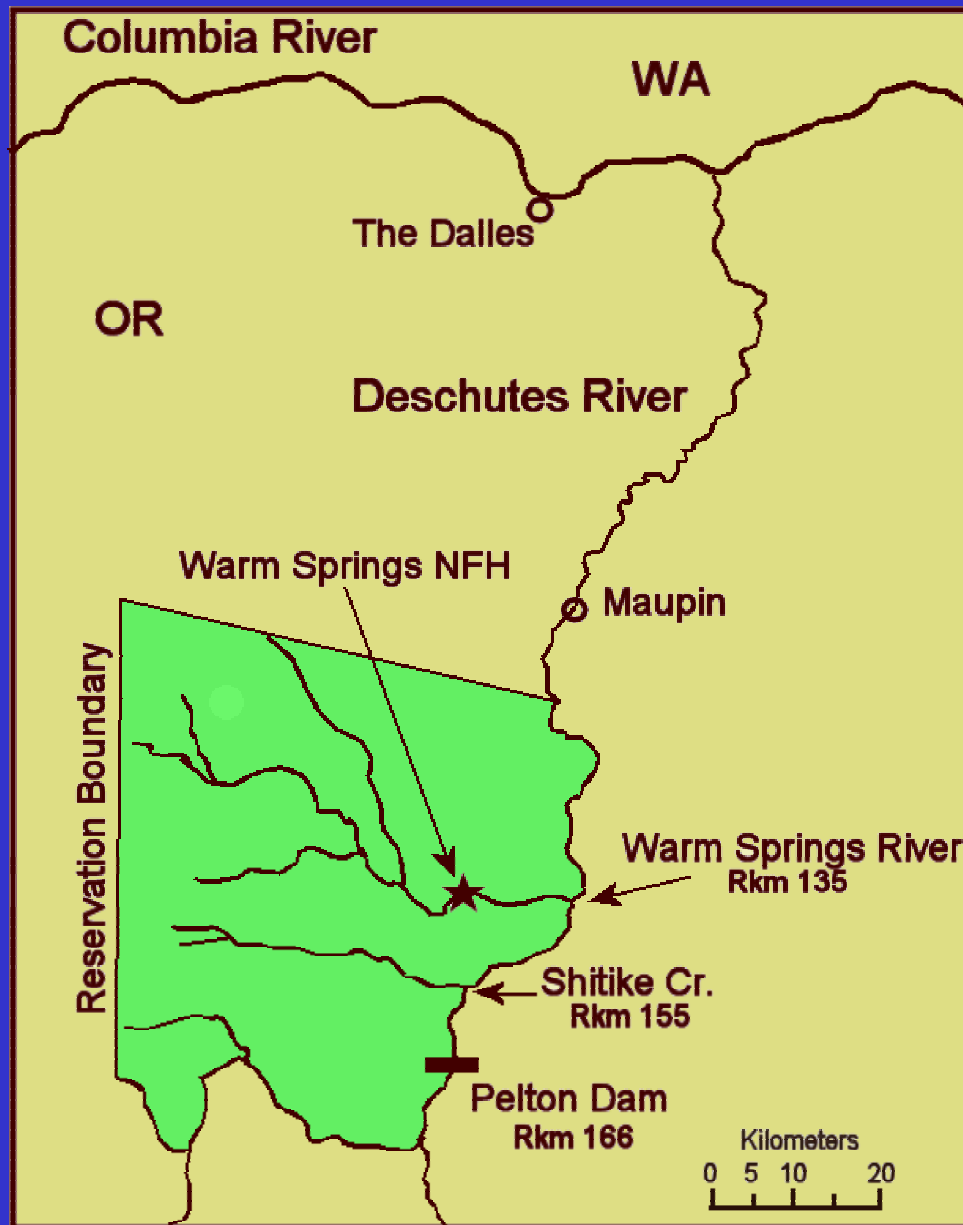


Start up = Camera + VCR + Handycam = \$1000

Use of Video by CRFPO - Hatchery Assessment Team

- Use for other behavioral observation of hatchery adults/juvenile salmonids in Shitike Creek on Warm Springs Reservation.
- Warm Springs NFH fall volitional release of spring Chinook salmon
 - Project Purpose
 - Determine diel movement of smolts from raceways
 - Estimate number of smolts leaving a particular raceway based on pond loading.
 - Video Use would:
 - limit field work time
 - Allow for estimation of smolts leaving volitionally without handling – a big positive.
 - Potential to see video in “low or no light conditions with Seaviewer Camera”





Area of Detail







Results

- Diel Movement
 - Based on video captured, little to no fish leaving during day and...
 - No evidence of fish leaving at night.
 - Not enough infrared emitters on camera to detect fish movement from raceways.
- Estimation of smolts leaving raceway not possible with SeaViewer video camera, would need an external infrared emitter*.



Request

- Mavis Shaw, Assistant Manager, was wondering about predators at hatchery release area near ladder.
- Additionally, might give us better idea about volitional movement from all the raceways.



Volitional Release Fish
Exit Hatchery Through
Tube and Out Steel Grate
Located Here

Video
Camera

Video
Camera

Concrete box with steel
grate underwater.





Video
Camera

Video
Camera



Video Recorded During WSNFH Fall Volitional
Release of 2002-03

Warm Springs NFH Fall Volitional Release

2002 and 2003



Results of Video

- Hatchery and Tribal staff placed more cover in stream this year for volitionally released smolts.
- Fish receive excellent training in predator avoidance – seem pretty aware of their own mortality.



Video Use in Hatchery Evaluation Studies

- Currently, HAT is helping assess baffles at Little White NFH and Warm Springs NFH
- Plan on using camera to determine
 - movement between baffles by juvenile fish
 - distribution of juvenile fish within individual baffles, raceways with and without baffles.



<http://pacific.fws.gov/webcam>

