Using 21st Century Sonar Technology to Manage Oregon Anadromous Fish Runs

21 March 2017 – Steve Beyerlin

Need of Sonar Imaging for Fish Counting

- Basics of fish counting and run estimates in Oregon
  - Fish Counting Accuracy Issues are encountered with spawning bed carcass counts by marginally trained seasonal employees and lack consistency year over year and questionable validity.
  - The historic counting station at Gold Ray Dam on the Rogue was lost with the removal of the dam in 2010 The information gathered at the Gold Ray Dam counter drove fisheries management on the Oregon Coast for 68 years and is now gone.
  - ODFW has created a hind-cast of fish runs on the Rogue not a forecast because they gather carcass counts after spawning is complete then it takes months to put data together for a run estimate. This results in spawner escapement estimate not a run estimate.
  - Despite a intensive conservation effort on the Rogue and millions of dollars spent the Rogue Rivers premier run of Wild Spring Chinook Salmon has declined 68% over historical levels even with the removal of two fish killing dams in Savage Rapids Dam removed in 2009 at $15 million dollars and Gold Ray Dam in 2010 at $5 million dollars.

Importance of Data to Manage Oregon's Fish Runs

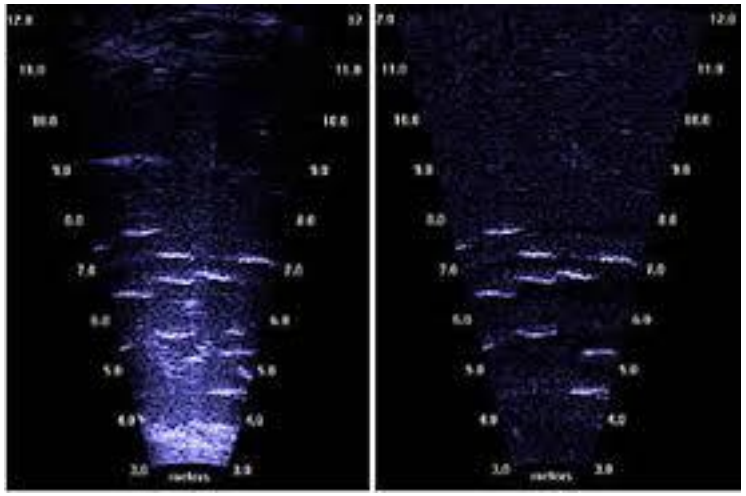
- Without proper input management of critical anadromous fish runs and fisheries becomes more of a guessing game than science.
- Knowing the number of salmon returning the timing of migrations and spawning escapement accurate fisheries management is not possible. Today we have only one of 3 key components being accessed by ODFW.
- Because of not knowing migration timing Rogue Spring Chinook spawners are not being completely counted which then impacts harvest opportunities.
- We really don't know what juvenile production is in any of our coastal rivers. ODFW cannot say if the habitat is productive – improving or declining in productivity. On the Rogue Juvenile Spring Chinook recruitment estimates are taken only every 10 years or more.
- DIDSON can be set to count size selective so we may know productivity of habitat with this proven technology.

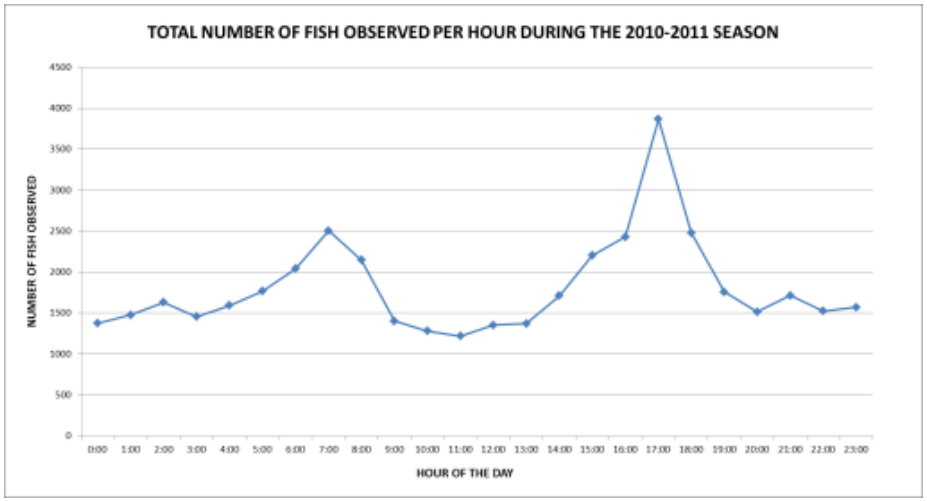
Notes on conventional Spawning Surveys

- Spawning surveys are the primary method of estimating fish returns
  - Data shows spawning escapement not run size or timing.
  - Spawning surveys do not supply Juvenile Recruitment information i.e. Habitat Health
- Some spawning surveys are intrinsically inaccurate.
  - Manual labor is used to survey a selected sections of stream and count fish carcasses.
  - Data is used to extrapolate to spawning range for run estimate.
  - Fish do not use the same reaches each year
  - River levels (rainfall) can effect results
  - Seasonal Staffing issues at ODFW can be a factor

DIDSON data is real time!!!

- Fish can be counted real time.
- Active management can take place based on real time data





Conclusion and Remarks

- Didson sonar technology is a state of the art technology that will increase the accuracy and knowledge of anadromous fish runs in Oregon and may help answer habitat health.
- Didson can be a scientific data gathering tool for active management and improved accuracy.
- At this time it appears there will be no Ocean Salmon Fishing season in Southern Oregon due to poor returns.