

# Observed and expected returns of salmon from Alaska to California in 2015

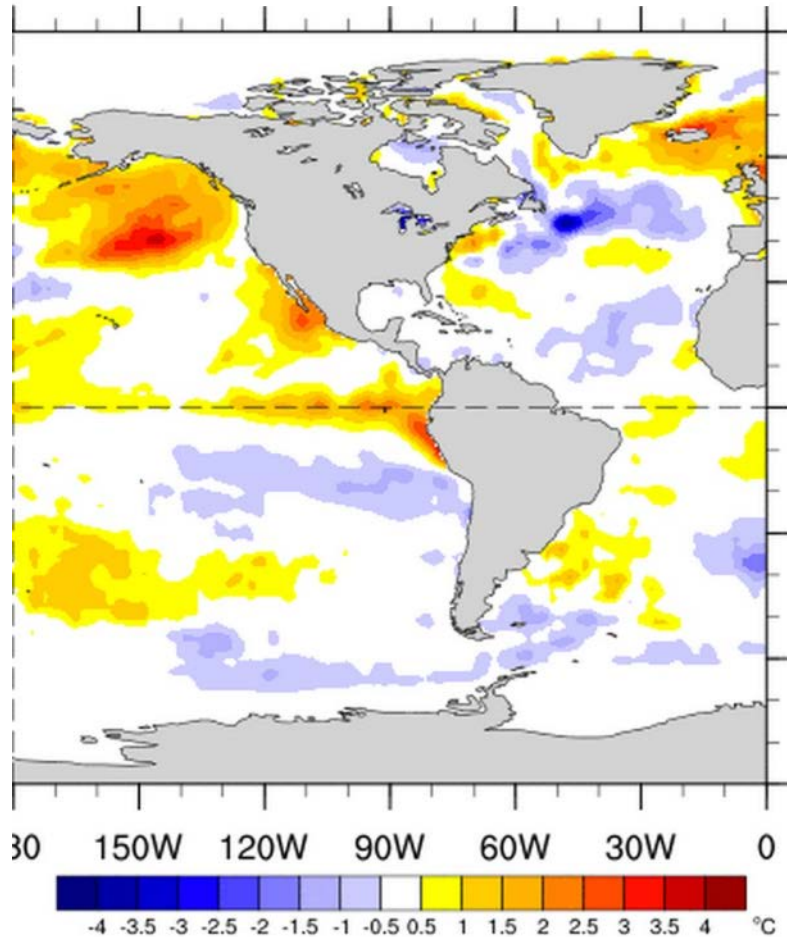


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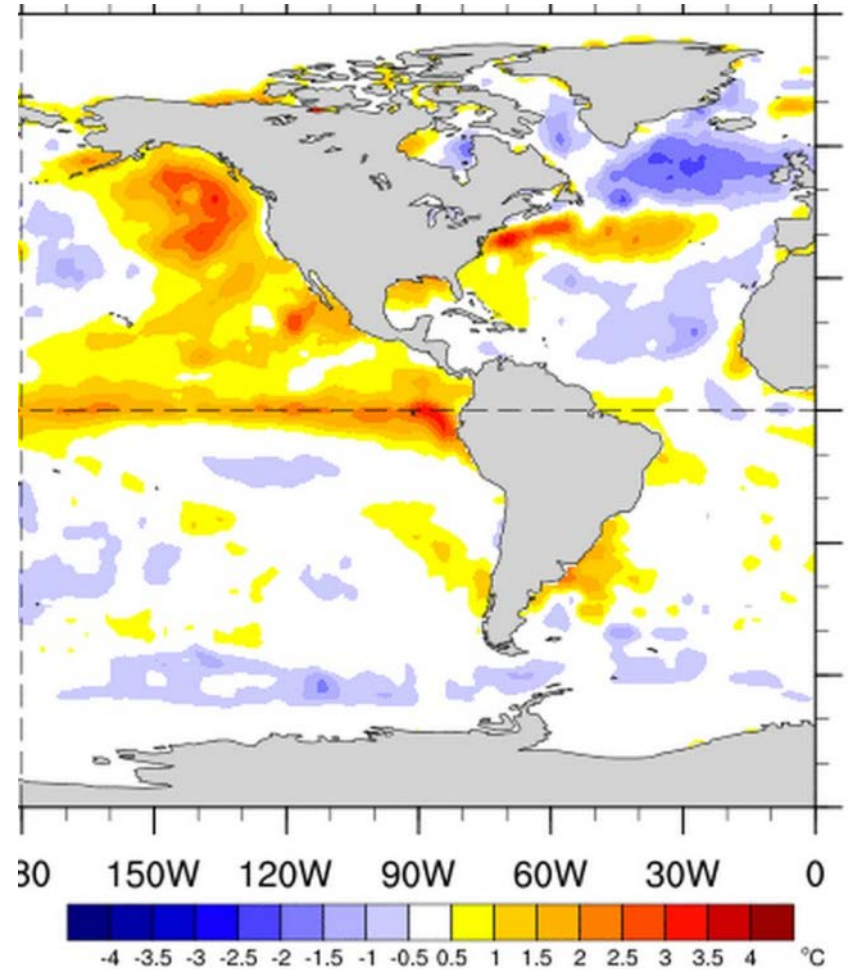


The ocean was unusually warm in 2014 and 2015 due to the warm blob and El Niño (normal in 2013)

**June 2014**



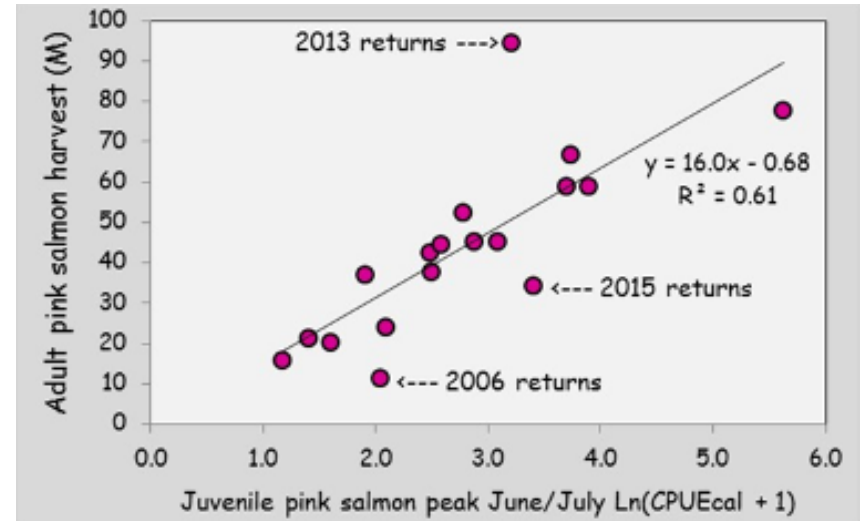
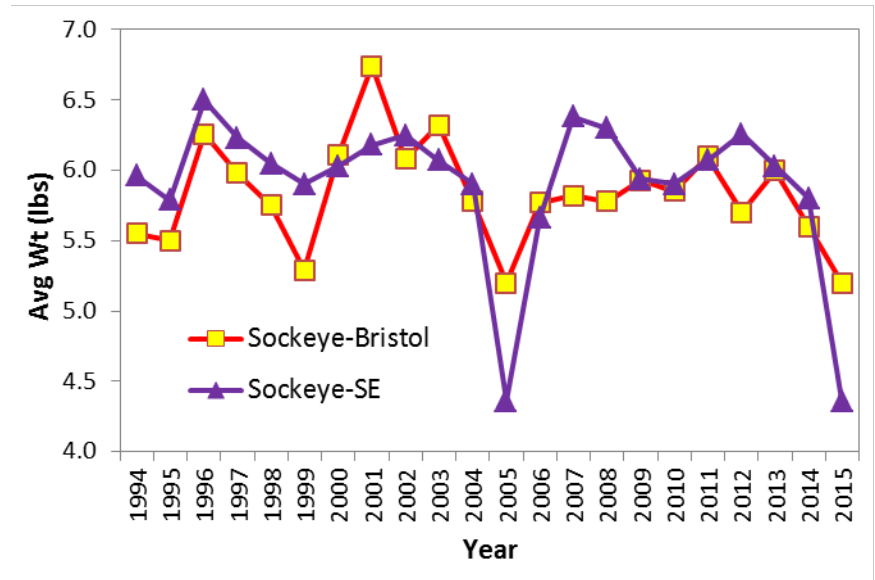
**June 2015**



# Warm oceans can be good for Alaskan salmon but ...

## Alaska

- 2<sup>nd</sup> highest salmon harvest on record (all spp. combined)
- <http://www.adfg.alaska.gov/>
- Alaskan sockeye adults were abundant but extremely small bodied (smallest in >20 yrs)
- Pink salmon returns to SE Alaska below expected but returns to other areas were extremely high
- [http://www.afsc.noaa.gov/ABL/EMA/EMA\\_PSF.htm](http://www.afsc.noaa.gov/ABL/EMA/EMA_PSF.htm)



# Fraser River and Puget Sound had lower returns than expected and fish were small

## Fraser River

- Sockeye and pinks returns were less than half of predicted ([www.psc.org](http://www.psc.org))
  - Predicted 6.7 mill sockeye but only 2.1 mill returned
  - Predicted 14.5 mill pinks but only 6.2 mill returned
  - extremely high diversion through Johnstone Strait (>90%)
- Interior Fraser coho (L. Ritchie, DFO)
  - Adult abundance, size, and fecundity all below average

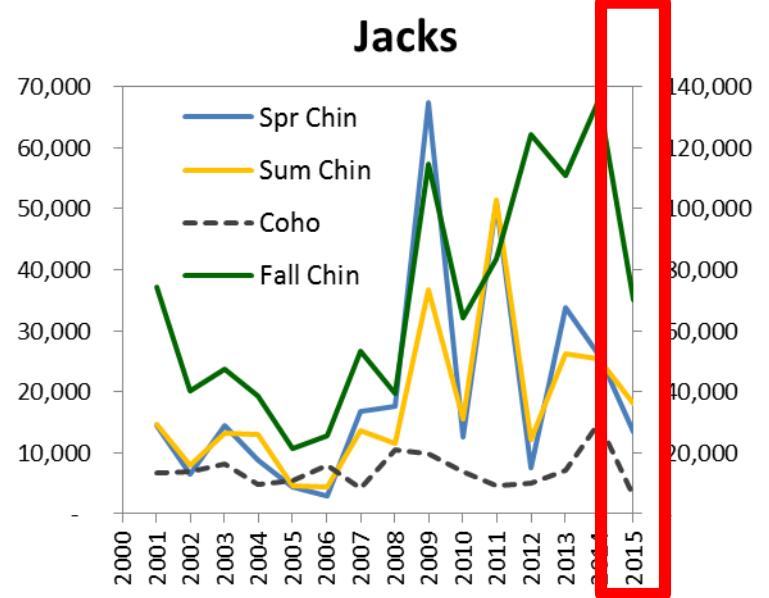
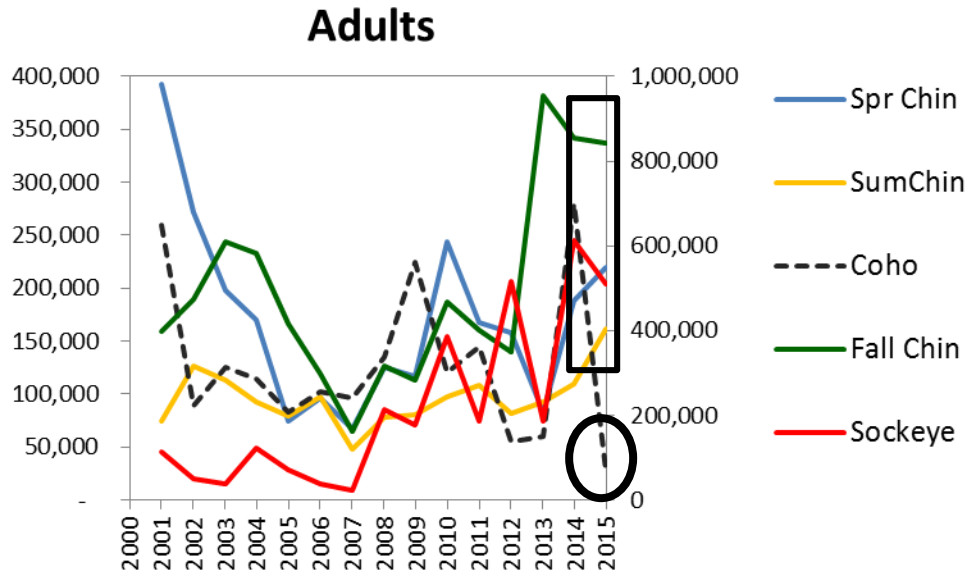
## Puget Sound

- Lowest Skagit coho return in decades (<6,000 vs. avg. 50,000)
  - Adult body size ~half of normal by weight
- Rumors of poor Chinook returns and small bodied as well

# Effects of warm water on Pacific salmon (2015)

## Columbia River (Bonneville Dam counts)

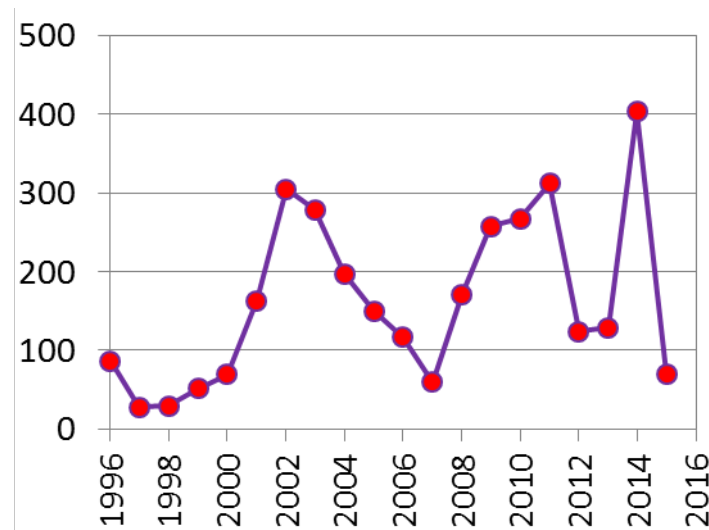
- High returns of adult Chinook and sockeye
  - entered ocean in 2013 or earlier
  - High in river mortality for sockeye (hot water)
- Low returns of adult coho (entered ocean in 2014)
- Low returns of Chinook and coho jacks
  - entered ocean in 2014 (Chinook) or 2015 (coho)



# Oregon coast salmon had mixed returns

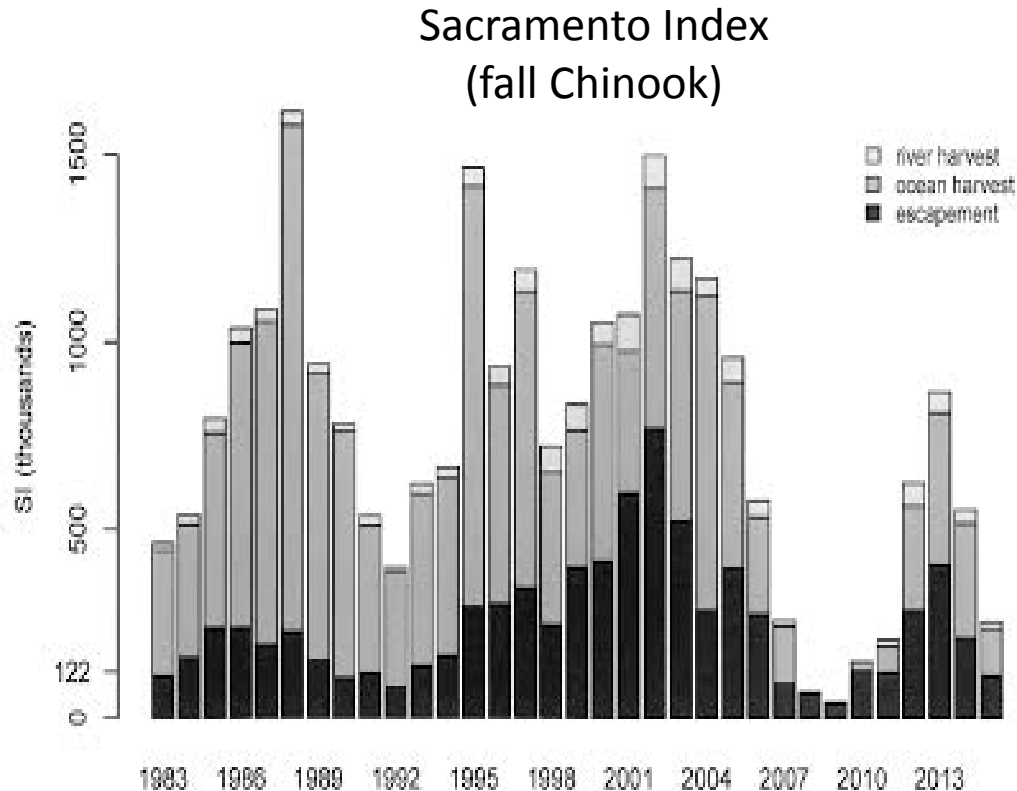
- Oregon Coast Chinook salmon were above average
  - Entered ocean in 2013
- Oregon Coast coho returns 1/3<sup>rd</sup> of expected and had low body size
  - Think low abundance from adult mortality

Oregon Coast Natural  
abundance (1,000s)



Data from PFMC 2016.  
Preseason Report I

# Central Valley Salmon fall Chinook returns low in 2015 but not exceptionally so



Data from PFMC 2016.  
Preseason Report I

# Summary of 2015 salmon adult returns

Extremely abundant  
but small bodied

Low-very low abundances and small bodied  
(except Columbia sockeye and OR Coast &  
Columbia Chinook)

Average abundance but  $\pm$  small bodied  
(but concerns for future years)

