Evaluating Hatchery Performance with Code Wire Tag Data

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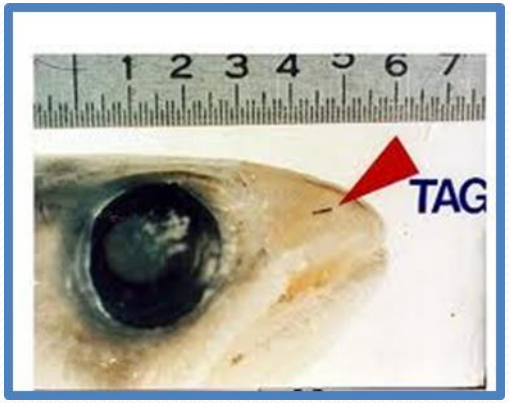
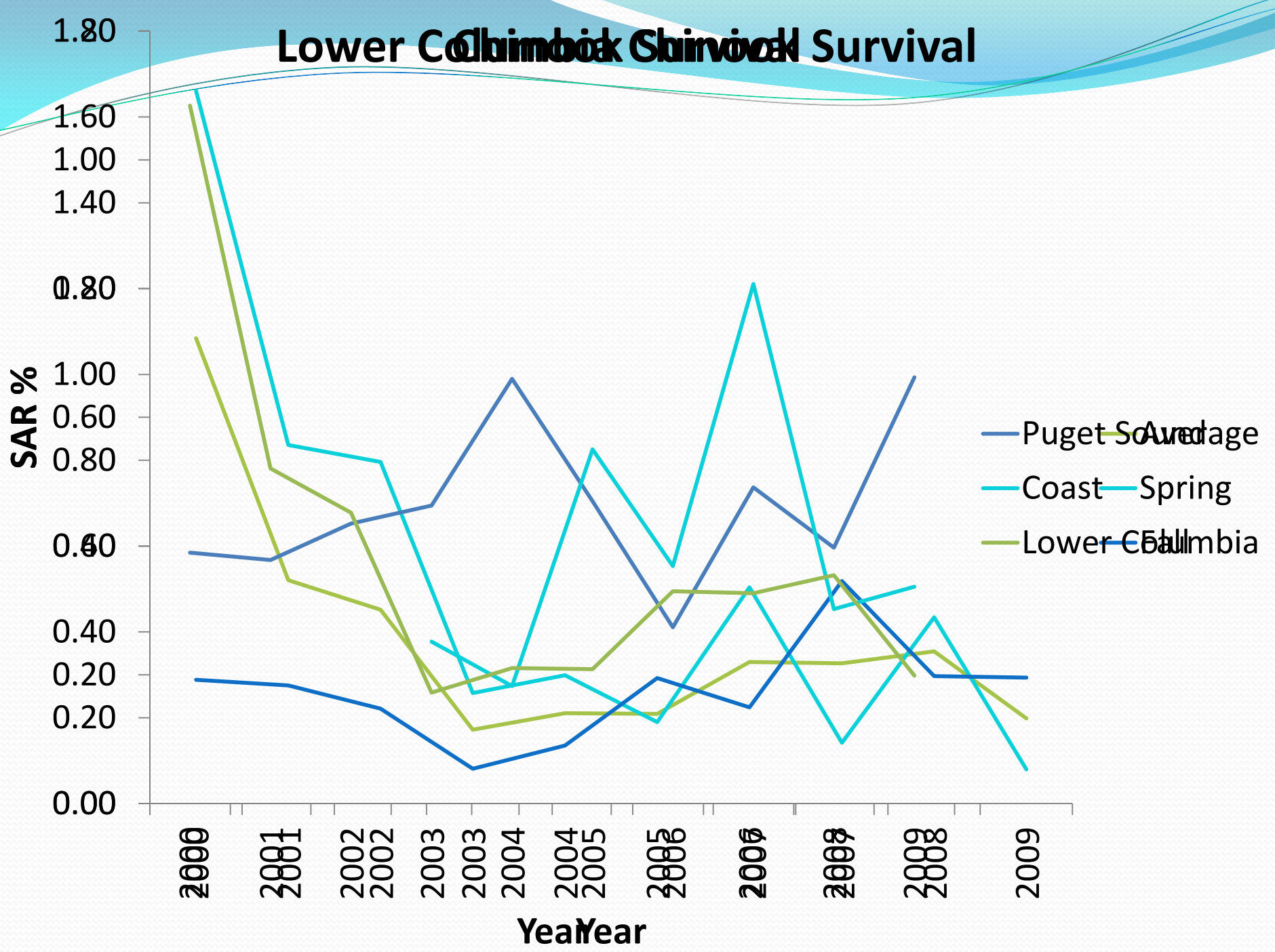
Coded Wire Program Tag Overview

- Determining the success of a hatchery program once the fish are released can be difficult.
- Coded Wire Tags (CWT) have been in use since the 1960's across entire west coast as a tool to collect information regarding salmon and steelhead stocks.
  - CWTs are small tags etched with a unique six digit code.
  - Inserted into the snout of juvenile salmon.
  - Over 50 million juvenile salmon tagged annually.
- Provides a reliable way to determine, smolt to adult survival, fisheries contribution and stray rates.
  - Data can be accessed through Regional Mark Information System (RMIS) at http://www.rmpc.org.



How is the data used?

- Smolt to adult return (SAR%) is a way to determine how well hatchery fish survive once released.
  - SAR = Returns / Releases
- Fisheries Contribution
  - Can compare survival and fisheries contribution among regions or among facilities.
- Estimate total and production from release size.
  - With SAR% and Fisheries Contribution program total returns can be estimated based.
  - Estimate adult production with different release sizes.
  - May be used to determine cost to produce adults.


Lower Columbia Chinook Survival
SAR %
Year
Puget Sound Average
Coast Spring
Lower Columbia Fall

Western Washington Chinook

Evaluating Hatchery Programs

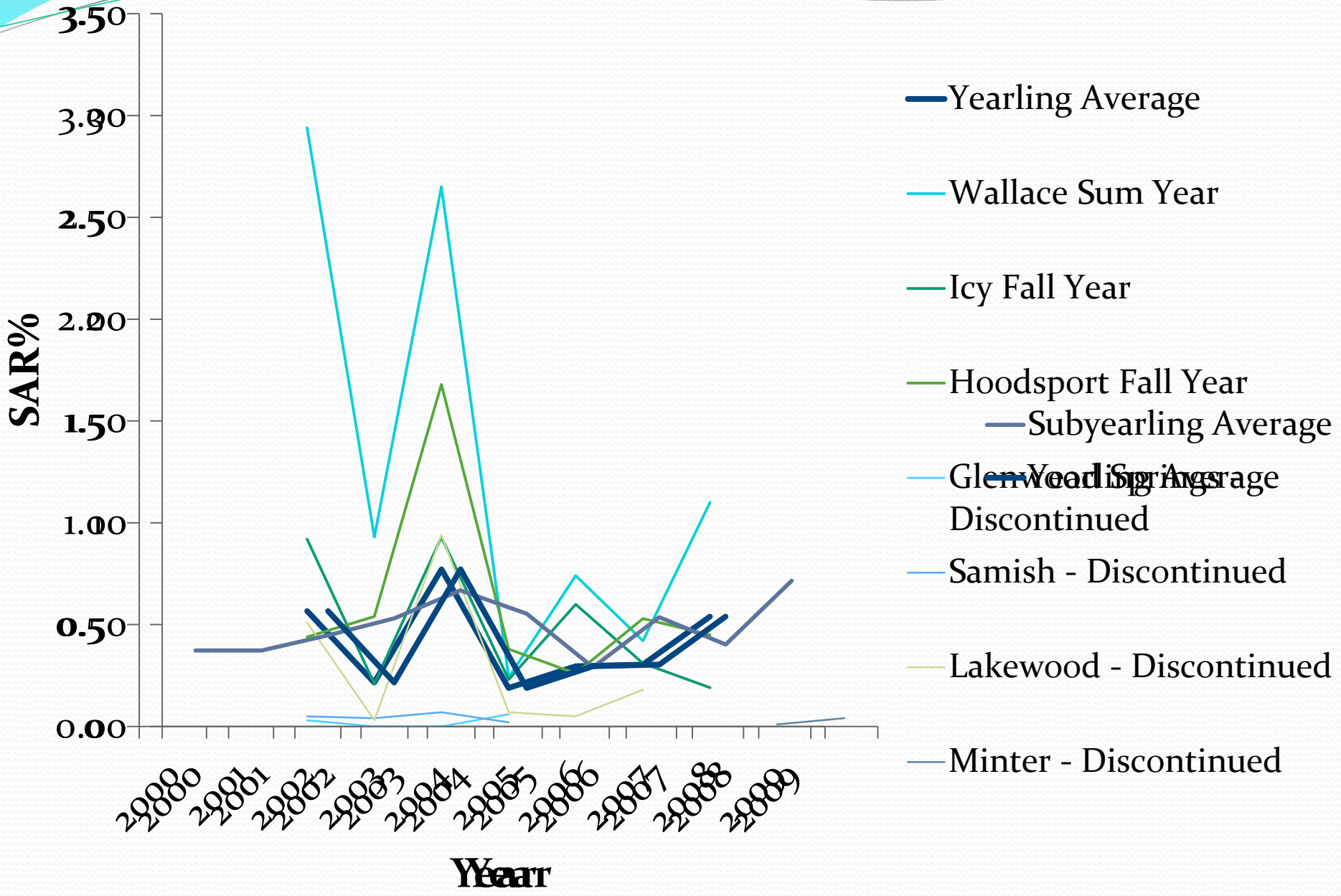
A Puget Sound Yearling Chinook Case Study

- Historically Yearlings have had a higher SAR% than sub-yearlings.
  - However SAR% has declined in recent years.

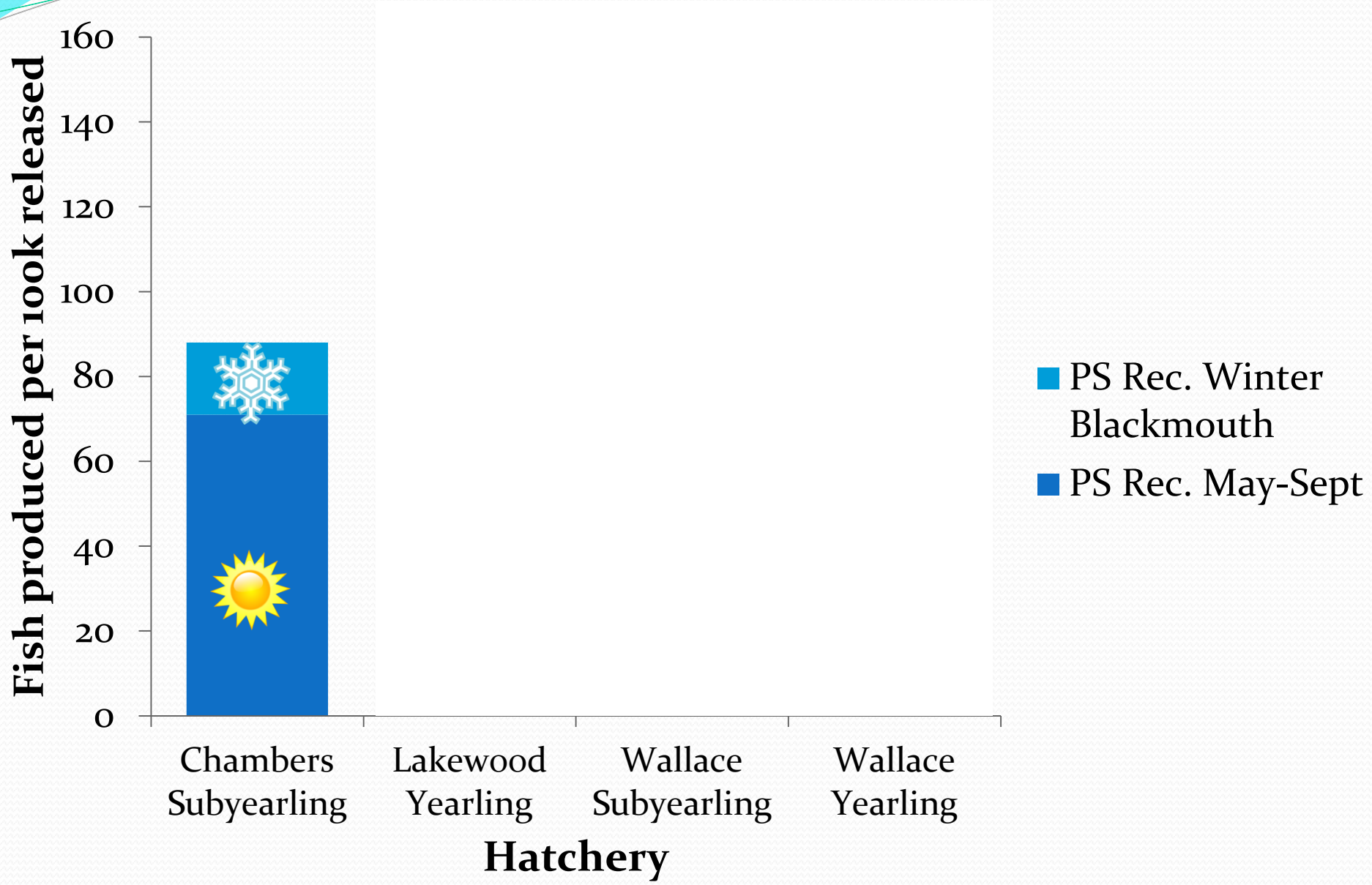
- Yearling Chinook are primarily raised in the Puget Sound to enhance the winter "blackmouth" Chinook fishery.

  - Where do yearlings show the largest benefits?

Puget Sound Yearling Chinook



Puget Sound Recreation Chinook Fishery Contribution



Conclusions

- Coded Wire Tag data provides a powerful tool for evaluating the success of hatchery programs.
  - Look at long or short-term survival trends.
  - Can be used to help prioritize production.

- Limitations
  - Lag in full returns and reporting.
  - Low recoveries or lack of sampling effort can effect data quality.

Question???

Estimating Impacts to Natural Stocks

- Impacts to natural origin populations can be estimated by looking at the stray rate.
  - Into a specific watershed to determine releases affecting the natural-population.
  - Facilities specific stray rates can be determined by dividing returns to a specific watershed by the total "river returns".
- Data is limited by sampling effort.
  - Spawning ground data not available for coho.