



Northwest Indian Fisheries Commission

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Agenda for Salmon Forecasting Workshop September 30 & October 1, 2015 Northwest Indian Fisheries Commission

The workshop will start promptly at 10:00 am on Wednesday and 9:00 am on Thursday.

10:00 am Wednesday, September 30

Welcome/introductions/introductory remarks

1. What are we forecasting?
2. Models based on means.
 - A. Forecast = return from previous year.
 - B. Forecast = geometric mean of previous years' returns.
 - C. Forecast is the product of an estimate of number of spawners in the primary brood year contributing to the return and the mean recruits per spawner.
 - D. Forecast is the product of an estimate of the number of smolts (or fry) out-migrating (or released from a hatchery) and the mean smolt-to-adult survival.
3. Juvenile production regression models with and without an environmental covariate.

LUNCH BREAK (\approx noon)

Restart (\approx 1:00 pm)

4. Sibling regression models

A. Forecast of the total return of age a is a function of the return of age $a-1$ in the previous year.

{SIDE BAR TOPIC} Why \ln in the data? Pros and cons of \ln transformed vs untransformed data.

B. Forecast of the total return of age a is a function of the return of age $a-1$ and an environmental covariate.

{SIDE BAR TOPIC} What years should be used if we have a choice (i.e., how far back in time do we go), what is an "outlier"?

C. The Sacramento Index forecast incorporating model autocorrelation in previous forecast errors.

{PS Chinook Forecast Example} Stillaguamish EMPAR (Environmental Model to Predict Adult Returns) Model (Jason Griffith)

End of first day wrap-up (\approx 4:00 pm)

END OF DAY 1

9:00 am Thursday, October 1

5. Spawner-recruit regression models.
6. Comparing and evaluating alternative models.
7. Forecasting coho using marine environment-based forecasting and generalized additive models (GAMs) and weighting competing models instead of selecting a single model.
8. Bayesian forecast models

{PS Chinook Forecast Example} Skagit Bayesian state-space model for steelhead and/or Chinook (**Casey Ruff**)

Workshop wrap-up (\approx 1:00 pm)

