# SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON THE REVIEW OF 2011 FISHERIES AND SUMMARY OF 2012 STOCK ABUNDANCE FORECASTS

## 2011 Review of Ocean Salmon Fisheries

Dr. Robert Kope presented the results of 2011 ocean salmon fisheries. Sections on status determination criteria have been added to chapters II and III. Tables II-6 and III-6 report Chinook and coho status relative to overfished/overfishing.

## 2012 Stock Abundance Forecasts

Dr. Kope presented the stock abundance predictions for 2012.

The Scientific and Statistical Committee (SSC) had an extensive discussion on several issues related to Sacramento River fall Chinook and Klamath River fall Chinook. Jack accounting in the Sacramento and Kalmath rivers is based on a combination of scale ages, coded-wire tag (CWT) recoveries, and length distributions. In the Klamath there is an annual system-wide assessment of escapement age structure, accounting for all age classes. In the Sacramento, scale, length, and CWT data are collected, but not analyzed in time to make annual age structure evaluations. Jacks are determined primarily using length cutoffs based on historical data. Because all returning fish tended to be large in 2011, the effect, for 2011 returns, may have been to underestimate the number of jacks.

The abundance of Sacramento River fall Chinook was over-predicted the last three years. The Salmon Technical Team (STT) has addressed this problem by basing the 2012 forecast on only the previous three years of jack to adult ratios. This is a reasonable response to the problem but, because it is based on only three data points, uncertainty of the predictor is high. The SSC could not judge whether this is an unbiased predictor, but it is obviously more conservative than the traditional model, which would be about 2.6 times higher. The SSC endorses the use of the predictor recommended by the STT for 2012, however, it is unclear how future predictions should be made.

The Klamath age three predictor is outside the range of the relationship based on jacks to three-year olds because the jack return is the largest on record, but there is no basis for making an adjustment.

The SSC recommends the 2012 forecasts, acceptable biological catches, and overfishing limits in Preseason Report I as the best available science for use in 2012 management.

## Research Needs

Sacramento fall Chinook stock assessments and forecasts will be improved with a time series of age-specific catch and escapement data. These data have been collected since 2006. Priority should be given to continuing this practice, and to establishing a system-wide capability to analyze age structure annually for use in stock assessment and season-setting.

Highly variable stock forecasts reduce the effectiveness of Council management by increasing the likelihood of foregone fishing opportunities or inadvertent overfishing. The SSC recommends exploration of the utility of in-season stock-specific catch per unit of effort to help identify such prediction errors in time to make appropriate adjustments.

Escapement Monitoring Plan

Ms. Alice Low, California Department of Fish and Game, presented a review of the Central Valley Chinook In-River Escapement Monitoring Plan. The SSC considers the revised escapement monitoring plan to be a substantial improvement over previous methods. Bias is reduced in surveys using mark-recapture estimates, and variance estimates are available for the first time.

There were concerns that elimination of bias might disrupt the escapement time series. Ms. Low reported that the new method resulted in a reduction of about nine percent in total escapement estimates in 2011. The SSC explored the effects of this on the time series of escapements. Previous escapement estimation methods were error prone and not consistent over time. The current adjustment is minor compared with other changes in escapement estimation methods that have happened over the past 20-30 years.

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