SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
METHODOLOGY REVIEW – FINAL APPROVAL

The Scientific and Statistical Committee (SSC) reviewed a proposal by Oregon Department of Fish and Wildlife (ODFW) to revise the marine survival forecast method used in the Oregon Coastal Natural (OCN) Coho Harvest Matrix (Agenda Item D.2, Attachment 1, November 2017). The OCN Coho Harvest Matrix sets allowable exploitation rates based on observed parental returns and forecasted marine survival. An ensemble of models is annually re-fit to OCN smolt-to-adult return rates estimated from six life cycle monitoring (LCM) sites throughout Oregon.

Recently, the northern-most LCM site, North Fork Nehalem, was eliminated due to budget reductions. ODFW evaluated the performance for years 2014 to 2017 of three alternatives to handle this change: (1) discontinue re-fitting the models annually and use the most recent fit from now on [fixed option], (2) re-fit the models annually using only the remaining five LCM locations [reduced option], and (3) revert to the method used prior to 2013, the Oregon Production Index (OPI) jack/smolt indicator [OPI option]. Although the fixed option fit the estimated marine survival pattern slightly better than the reduced option, ODFW expressed concern that future changes in the relationship between oceanographic indices and survival may be overlooked if the model is not annually refit. The OPI option had a poor relation to OCN Coho marine survival and resulted in allowable exploitation rates that were biased low.

The SSC agrees that refitting the model each year may make it possible to detect a signal if environmental predictor performance changes, as is common in forecast models. Although the loss of the most northerly site did not seem to lead to a major loss of information at this time, the SSC encourages the use of spatially diverse monitoring sites to represent the OCN Coho salmon. The SSC supports the adoption of the reduced option and recommends reviewing the method periodically.

PFMC
11/15/17