

Technical Revision to the Marine Survival Index of the OCN Coho Work Group Harvest Matrix

Oregon Department of Fish and Wildlife

Amendment 13 (A13) to the Pacific Fishery Management Council's (PFMC) Pacific Coast Salmon Fishery Management Plan sets Oregon Coastal Natural (OCN) coho salmon allowable exploitation rates using a two dimensional matrix with observed parental returns and forecasted marine survival as the axes. In 2013, a methodology change revising the basis for forecasting marine survival was accepted by the PFMC.

The revision replaced the prior method, which was an index calculated as the number of Oregon Production Index (OPI) hatchery coho jacks returning in the prior year divided by the number of OPI hatchery coho smolts released in that same brood year. The new marine survival parameter is a forecasted OCN smolt-to-adult return rate. Using observed OCN smolt-to-adult return rates averaged across six life cycle monitoring (LCM) sites distributed across the Oregon Coast Coho ESU, ODFW staff created a predictive model using selected oceanographic indicators, jack observations on ODFW spawning ground surveys, and the jack/smolt ratio at the Mill Cr (Yaquina R.) LCM site as the predictor variables. ODFW created this model using an ensemble of generalized additive models. In the current PFMC process the model ensemble is refit each year with the addition of the latest set of predictor and response data.

ODFW LCM sites are funded in part by Oregon state general funds, and recent statewide general fund budget reductions have resulted in the elimination of the LCM site on the North Fork Nehalem River. Beginning with the 2018 forecast we will not be able to refit the models annually using all six of the LCM sites that comprised the 2013 method revision, due to the lack of the Nehalem site.

At least three alternative approaches are possible to adjust to this change:

- Discontinue the process of refitting the models annually and use the most recent refit models (2017) to forecast OCN marine survival into the future;
- Continue refitting the models annually, using the remaining five LCM locations to calculate OCN marine survival;
- Revert to the OPI hatchery jack/smolt indicator used prior to 2013.

ODFW is requesting that the SSC Salmon subcommittee and the STT review these alternatives, and/or suggest other approaches. ODFW will analyze how alternatives compare to the current predictor used since 2013 and present the analysis to the SSC Salmon subcommittee and the STT during the annual salmon methodology review meeting in October.