SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
FINAL SCIENTIFIC AND STATISTICAL COMMITTEE METHODOLOGY REVIEW
RECOMMENDATIONS ON THE CHINOOK AND COHO FISHERY REGULATION AND ASSESSMENT
MODELS FOR 2003 SALMON MANAGEMENT

Mr. Jim Packer and Mr. Larry LaVoy from the Washington Department of Fish and Wildlife (WDFW) presented a report to a joint meeting of the Scientific and Statistical Committee's (SSC) Salmon Subcommittee and the Salmon Technical Team on proposed changes to the chinook and coho Fisheries Regulation Assessment Models (FRAM). This meeting was held on February 5, 2003 in Portland, Oregon. Major changes to the chinook FRAM were initially reviewed in November 2002. The purpose of the February meeting was to receive an update on tasks that were incomplete as of November and to review a proposed base period change to split the terminal time step of the coho FRAM.

Chinook

Terminal Area Management Modules (TAMMs) needed to be changed to accept marked and unmarked stock components. These changes have been completed. Additional material presented at this meeting supported the results reviewed in November which indicated the modified chinook FRAM is capable of duplicating the results of the previous version of the model in the absence of mark-selective fisheries. Therefore, the modified FRAM can be used to assess impacts if mark-selective fisheries are not under consideration.

At the joint meeting, the group was presented an example using chinook FRAM to evaluate the impacts of a mark-selective sport fishery in Washington Marine Areas 5 and 6 (Strait of Juan de Fuca) during July, August, and September. This example compared exploitation rates by stock projected by chinook FRAM for the final 2002 model run to those using chinook FRAM in selective fishery mode with the mark-selective fishery described above implemented. Modeled effects were in the expected direction, but the magnitudes of these changes could not be evaluated.

The SSC cannot endorse chinook FRAM as a tool for evaluating the impacts of proposed mark-selective fisheries. Our reservations stem from assumptions about the age structure, length composition, growth, mortality rates at age, and other factors that introduce additional uncertainty into model projections in the presence of mark-selective fisheries. Given the current status of model documentation describing how mark-selective fishery impacts will be estimated by chinook FRAM, we are unable to give the model the rigorous evaluation that is needed. If mark-selective fisheries are implemented for 2003 they should be of limited magnitude and used as an opportunity to evaluate specific predictions of the selective chinook FRAM. The SSC will continue review of the model in November 2003.

Coho

The coho FRAM was modified to accommodate the Abundance-based Management agreement of the Pacific Salmon Commission. This required splitting the September-December terminal time step into September and October-December time steps. The rationale for this change was to better capture the September transitional migration period and terminal area differences in stock composition between September and October.

Mr. LaVoy and Mr. Packer presented many spreadsheets comparing exploitation rates and impacts before and after the time split. After the split of base period time strata the estimated cohort sizes changed. Although no major differences were apparent for the first three time periods, there were larger differences in the terminal area for the final two time steps, most notably for the Stillaguamish/Snohomish river runs. Changes to the FRAM time step primarily affect the terminal area fisheries for the October-December stratum, whereas the Council is primarily managing for ocean fisheries during June-August and into September.

Some concern exists for the ability of available coded-wire tag (CWT) recovery data to support further disaggregation into an additional time step. The original criterion for CWT data was to have at least five tags per time-area stratum. Reliability of exploitation rate estimates is now reduced, because of smaller numbers of CWT recoveries in the two split strata. This is particularly noticeable for the October-December period. Despite this deficiency, the assessment authors still consider the time split to be a better representation of reality for the purposes of harvest management. The SSC does not have sufficient information to evaluate this assertion.

The SSC found it difficult to evaluate the overall effects of the time-step change. Although a brief summary report and many spreadsheets were available prior to the joint meeting, documentation comparing the relative impacts was lacking. Documentation for the method of splitting fisheries into the September or October-December strata was also insufficient. The Model Evaluation Workgroup (MEW), currently being formed, should help to ease the documentation and testing problems.

PFMC
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