

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

The Salmon Technical Team (STT), along with the Scientific and Statistical Committee (SSC) Salmon Subcommittee, met with representatives of the Washington Department of Fish and Wildlife on February 5, 2003 to continue the methodology review of proposed changes to both the chinook and coho Fishery Regulation Assessment Model (FRAM) models. This meeting was a continuation of a methodology review conducted last fall. At that meeting, the STT and the SSC Salmon Subcommittee reviewed changes made to the chinook FRAM intended for impact analysis of mark-selective fisheries on chinook salmon.

Methodology topics reviewed at the February 5th meeting were, (1) updates and modifications to the chinook FRAM and the chinook Terminal Area Management Modules (TAMMs), (2) Addition of a fifth time step in the coho FRAM, and (3) an update on the Pacific Salmon Commission (PSC) development of a coastwide coho model based on the coho FRAM.

Chinook TAMMs

At its November meeting, the Council adopted the revised chinook FRAM as the methodology for evaluating non-selective fisheries, provided that STT and the SSC Salmon Subcommittee determine that TAMMs have been successfully integrated. Chinook TAMMs are used extensively by Puget Sound managers in preseason planning. They are also used by the STT to estimate total annual exploitation rates and/or escapements of Puget Sound stocks. This information is needed by the Council to ensure compliance with both Endangered Species Act (ESA) and fishery management plan (FMP) mandated constraints. The modifications to chinook FRAM reviewed by the STT included (a) a correction to a reporting error that affected accounting for incidental fishing mortalities in certain situations; (b) converting the output report format for TAMMs from a Lotus spreadsheet to Excel; and (c) modification of some of the algorithms and reports to display the effects of mark selective fisheries. The details of the calculations performed in chinook FRAM were not reviewed.

The STT welcomes the migration of the TAMMs to Excel. The migration was undoubtedly a tedious and substantial effort and has been a long time coming. Based on the consistency between the outputs of the new and old TAMMs, we are reasonably confident that results can be replicated when given identical inputs. Therefore, **the STT recommends the Council adopt both the new FRAM and TAMMS for use this year for analysis of non-selective fisheries.**

At the November 2002 Council meeting, the STT recommended that a decision on the use of the modified chinook FRAM for analysis of mark selective fisheries be made only after specifics of any proposed mark selective fisheries are known. The STT has similar reservations about the use of the TAMMs to analyze the effects of chinook mark selective fisheries. Depending on the location, size, and timing of mark selective sport fisheries, the TAMMs may or may not be an appropriate tool for impact analysis. Therefore, **the STT recommends the Council defer a decision on adoption of the chinook FRAM and TAMMs as standard methodology for evaluation of mark selective fisheries until the specifics about any proposed mark selective fisheries are known.**

Coho FRAM

The coho FRAM has been modified such that the September-December time strata has been split into two time periods, (1) September, and (2) October-December. The additional time step required allocation of natural mortalities between the two time periods and re-estimation of abundances and exploitation rates in all time periods. The impetus for the split was to improve the capacity of the model to evaluate impacts of fisheries occurring during the period of active spawning migration. This is of particular concern when examining impacts on stocks with differential run timing, such as Interior Fraser coho. The PSC's Coho Technical Committee has also recommended that this split in time strata occur.

During the process of adding another time step, an error was discovered in the base period file employed for management planning in 2002 for the Stillaguamish and Snohomish stocks. The STT has reviewed the results of the correction to model input data and the change in time strata. As expected, the model with the September split will not replicate the results of last year's Coho FRAM given the procedures required to add the additional time step. The differences in model outputs between the old and new versions are reasonable and consistent with the coding and data changes that have occurred. Therefore, **the STT recommends the Council adopt the revised coho FRAM for use in 2003.**

Coho Regional Planning Model

Dr. Gary Morishima gave a brief update on the PSC Coho Technical Committee's efforts to develop a Regional Coho Fishery Planning Model, as called for in the PSC's agreement for abundance-based management of coho originating in Southern British Columbia and Washington State. Some of the major points he mentioned were:

- The regional coho model will be based on the coho FRAM model currently used by the Council and is intended to be used bilaterally for implementation of the PSC Coho Agreement.
- Canada is reviewing a list of proposed stock and fishery strata to be included in the regional model.
- A new base period file with agreed stocks, fisheries, and coded-wire tag representation should be available in the summer of 2003.
- The regional model is anticipated to be ready for the Council methodology review in the fall of 2003, with the target date for application for both Council and PSC in 2004.

The STT looks forward to the review, acceptance, and implementation of the regional model by the Council in 2004. Regional, coastwide, or large geographic models like this greatly reduce the potential for user confusion, or for conflicting or contradictory results that can arise when different models are used.