

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON FISHERY MANAGEMENT
PLAN AMENDMENT 13 – ANNUAL CATCH LIMITS AND ACCOUNTABILITY
MEASURES

Mr. Mike Burner provided an overview of “*Measures for Integrating New Provisions of the Magnuson-Stevens Fishery Conservation And Management Act and National Standard 1 Guidelines Into Coastal Pelagic Species Management*” (Agenda Item H.2.a Attachment 1) and Dr. Kevin Hill presented the section on overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL) considerations for Pacific sardine. The Scientific and Statistical Committee (SSC) discussion focused primarily on the sardine harvest control rule (HCR).

At several earlier meetings, the SSC and the Coastal Pelagic Species Management Team (CPSMT) have discussed the extent to which the existing Pacific sardine HCR reflects OFL adjustments that account for scientific uncertainty. The issue is somewhat complex because:

- 1) sardine assessment uncertainty is the largest of all the Council-managed species that have been examined to date – implying the need for a significant buffer between OFL and ABC;
- 2) the temperature-dependent F_{MSY} for sardine is unique among F_{MSY} definitions for Council-managed species; and
- 3) to some extent, the existing sardine HCR provides OFL adjustments – particularly during warm temperature regimes.

Using preliminary results from the SSC’s work on “Quantifying Scientific Uncertainty in PFMC Stock Assessments” (Agenda Item E.4.a, Supplemental SSC Report 1), the CPSMT addressed this issue quantitatively for the first time. The analysis, although preliminary in nature, was quite helpful in clarifying the SSC’s thinking on this matter.

Prior to the Council’s final consideration on the FMP Amendment (June 2010), the SSC suggests that the analysis be revised as follows:

- a) update the best estimate of scientific uncertainty for sardine ($\sigma=0.39$);
- b) in Table 2, re-calculate $ABC = BUFFER \times OFL$ (for P^* in the range 0.2 – 0.5) and add ACL as the minimum of ABC and the catch resulting from application of the HCR;
- c) extend the range of sea surface temperatures (SST) considered to that used in Figure 1; and
- d) display results (ABC and ACL) as a function of P^* , SST, σ , and biomass (ages 1+).

The SSC would also like to see a critical examination of the SST dependent F_{MSY} function. It is quite likely that there is considerable uncertainty in this relationship (especially for warmer SSTs), and if properly accounted for in the value of σ used for calculating buffers, would increase the OFL buffer appreciably, i.e. decrease the ABC. Over the longer term, the concept and support for the F_{MSY} function should be re-evaluated. The original work was carried out in the late 1990’s prior to the resurgence of the sardine stock. Considerably more data are now available and should be examined to ascertain whether or not the original function is still

appropriate. The importance of the F_{MSY} function has increased considerably in light of the new NS1 guidelines.

With regard to the monitored species in the CPS FMP, the ABC alternatives ($ABC = 0.25 \times BIOMASS$ or $ABC = 0.25 \times BIOMASS \times BUFFER$) should be examined in light of the highly dynamic nature of species such as anchovy. Biomass for such species cannot be estimated on a regular basis. As such, if biomass is estimated at a time of high stock size, the resulting ABC may not be appropriate.

Regarding Section 3.5 (State and Federal Management Considerations), some of the status quo advantages should be reconsidered. For example, it is not likely that continuing to include all current species in the FMP will provide a vehicle to account for climate change, etc.

PFMC
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