PACIFIC SARDINE HARVEST PARAMETERS WORKSHOP

The current Pacific sardine harvest control rule (HCR) was adopted as part of Amendment 8 to the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP) in 1998. The harvest guideline (HG) formula includes the parameters of Biomass, Cutoff, Distribution, and Fraction; and Amendment 8 included the recognition that these parameters should be revisited periodically, to ensure adherence to best available science. The CPS FMP also includes mechanisms for amending harvest management measures in response to conservation or socio-economic concerns. Inherent in the CPS FMP is the presumption of flexibility and adaptation to a changing management and science landscape.

In 2012, based on recent scientific findings and recommendations from advisory bodies and the public, the Council tasked the Executive Director to convene a workshop that would explore some critical components of sardine management. The workshop took place February 5-8, 2013, at the Scripps Institution of Oceanography (SIO) in La Jolla, California, with advanced distribution of key documents. These included a workshop Terms of Reference with a clear purposed statement and four objectives related to Pacific sardine management: mathematical specifications for an initial risk assessment framework to evaluate the performance of alternative Overfishing Limit and HG control rules, the temperature-recruit relationship, the Distribution term, and plans for a full management strategy evaluation (Agenda Item I.1.a, Attachment 1). Workshop results are presented in a report (Agenda Item I.1.b, Attachment 1).

Invited workshop participants included experts in the fields of fisheries oceanography, stock assessment modeling, and ecosystem modeling. These participants included the original authors of Amendment 8, attendees from Canada and Mexico, CPSAS representatives, the CPSMT, and many others who have participated in the science and management of Pacific sardine.

The workshop successfully generated significant amounts of new material to consider. The Council must now consider how, if at all, to incorporate the new information into management. There are many permutations regarding what could potentially be done in response to the findings of the workshop. However, decision making on changes to current management policy should be scheduled and noticed for one or more future Council meetings.

Risk assessment model: The highest priority objective of the workshop was to establish mathematical specifications to use in an evaluation of alternative OFL and HG control rules, given scenarios which relate to uncertainty in Pacific sardine management. Agenda Item I.1.b, Attachment 2 reports on the results of application of the risk assessment model, which the options for the OFL and HG control rules are based largely on the set of simulations done in the development of Amendment 8. Agenda Item I.1.b, Attachment 3 is a table from the Amendment 8 analysis that presents results from those management options, for comparison with the results of the more recent simulation results. The Council should consider whether the set of simulations allows for sufficient review of current harvest management, or whether the Council would like to see a different suite of harvest policy options before drawing any conclusions.

Temperature-recruit index: Despite concern that the temperature time series measured as the SIO Pier no longer correlated with Southern California Bight temperatures, and no longer provided a predictive relationship with sardine recruitment, the workshop found that 1) SIO temperature was indeed still correlated with SC Bight temperature as well as sardine recruitment, and 2) an even better temperature index is found based on California Cooperative Oceanic Fisheries Investigations (CalCOFI) temperature data.

Distribution: The HCR includes a Distribution term to account for Pacific sardines being a transboundary stock. Amendment 8 explored options for Distribution, and concluded that 87% was a reasonable figure to use. This means that although sardine stocks are migratory and spatially variable, over time, approximately 87% of the entire northern stock would be found in U.S. waters, on average. The workshop found that the increased presence of sardines in waters off the Pacific Northwest and Vancouver Island suggest a closer look at the 87% figure, although there was no consensus regarding a better figure to use.

Management Strategy Evaluation: The workshop considered several ecosystem models, to explore the possibility of incorporating ecosystem models fully into sardine management. However, the models are currently not well developed enough to base harvest management practices. The Council should consider whether a full MSE is warranted, feasible logistics and workload, and an anticipated schedule if further work is warranted.

Council Action:

Consider Workshop Report and Provide Further Direction.

Reference Materials:

1. Agenda Item I.1.a, Attachment 1: Terms of Reference.
2. Agenda Item I.1.b, Attachment 1: Report of the Pacific Sardine Harvest Parameters Workshop, February 2013.
3. Agenda Item I.1.b, Attachment 2: Initial Analyses Related to Evaluating Parameter Value Choices for Pacific Sardine
4. Agenda Item I.1.b, Attachment 3: Table 4.2.5-1 from CPS FMP Control Rule Options.

Agenda Order:

a. Agenda Item Overview — Kerry Griffin
b. Report overview and description — André Punt
c. Reports and Comments of Advisory Bodies and Management Entities
d. Public Comment
e. **Council Action**: Consider Changes to Sardine Harvest Control Rule Parameters

PFMC
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