

TERMS OF REFERENCE

PACIFIC FISHERY MANAGEMENT COUNCIL WORKSHOP ON PACIFIC SARDINE MANAGEMENT STRATEGY AND HARVEST CONTROL PARAMETERS

February 5-8, 2013

Scripps Institution of Oceanography
Edward W. "Ted" Scripps II Room of the Seaside Forum
8610 Kennel Way
La Jolla, California, 92037

I. Purpose

To examine possibilities to improve on management strategy concepts and elements currently in use for the Pacific sardine fishery in the Pacific Fishery Management Council process, for further consideration at a future Council meeting.

II. Objectives

1. Design a risk assessment projection model that can evaluate the current use of selected harvest control rule (HCR) parameters with regard to risk in jeopardizing long-term stock productivity, for potential Council decision making in 2013.
2. Consider recommendations for:
 - a. a new predictive relationship between recruitment success and environmental variables;
 - b. a new estimate of the proportion of the stock that occurs in USA waters
3. Prepare an initial plan for a full management strategy evaluation (MSE) for Council consideration in 2015.

III. Objectives Detail, Responsible Presenters, and Rapporteurs

1. Review and refine mathematical specifications for a risk assessment projection model for Pacific sardine that could be used to evaluate different F_{MSY} proxies and trade-offs achieved by different parameterizations of appropriate current HCR rule elements¹, towards an ultimate objective of evaluating risk that the current management approach jeopardizes long-term stock productivity. These refined specifications would be of sufficient simplicity to allow for a subsequent analysis by a small workgroup that could be completed at least two weeks in advance of the April 2013 Council meeting. The SSC, CPSMT, and CPSAS will then review the specifications and resulting evaluation/analysis and develop statements as part of the normal Council process to consider potential changes to HCR applications. (*This is the workshop's primary objective*).
 - a. Primary presenter: Felipe Hurtado
 - b. Rapporteur: Alec MacCall

¹ The workshop will examine selected harvest control rule elements. While many view the harvest guideline (HG) formula as the harvest control rule, a more generic definition applies to this workshop. For example, the FRACTION term (an F_{MSY} proxy) used in generating an annual HG and the F_{msy} value used in Overfishing Limit calculations will both be evaluated in the workshop as indicated in the text.

2. Prior to the workshop, primary presenters will evaluate evidence for predictive relationships on the two parameters described below. If they can identify recommendations for new relationships that can be an improvement over the relationships currently in use, presentations of these recommendations would be made at the workshop for group evaluation and potential refinement. A resulting report would be completed for distribution at least two weeks in advance of the April Council meeting for consideration in the Council process as described above. (*The prospect for new working relationships for these two factors represents the secondary objective of the workshop.*) If after preparatory investigation the primary presenters do not have a recommendation for a new relationship, then no presentation would be made under the Objective 2 session of the workshop. However, a short presentation may be made during the Objective 3 session in the context of a potential contribution to planning for a full MSE.
 - a. The relationship between recruitment success and environmental parameters.
 - i. Primary presenters: (1) Sam McClatchie and Larry Jacobson; (2) Martin Lindegren and David Checkley
 - ii. Rapporteur: Russ Vetter
 - b. The proportion of the stock that occurs in USA waters under average contemporary oceanographic conditions, or during warm, cool, and transitional oceanographic regimes.
 - i. Primary presenter: David Demer
 - ii. Rapporteur: Josh Lindsay
3. Review information on ecosystem models for California Current Ecosystem, and consider other elements that would form the basis for an MSE which evaluates the impact of the HCR for Pacific sardine on the broader ecosystem, including the role of sardines as forage for higher level non-human predators and concepts of overall optimum yield. Develop an initial plan for a process and a two-year schedule for a full MSE, for consideration at the April, 2013 Council meeting. (*This represents the tertiary objective of the workshop.*)
 - a. Primary presenter: Enrique Curchister
 - b. Rapporteur: Brian Wells and Kevin Hill

IV. Outcomes

1. A workshop summary report, including
 - a. specifications for use by the workgroup who will be working to conduct the analyses and prepare a risk assessment analysis report for review at the April Council meeting;
 - b. a post-workshop report on the two potential new relationships as per Objective 2;
 - c. a report describing an initial plan for a full MSE process and schedule;
 - d. other appropriate records of the workshop.

V. Logistical Matters

1. Dates and location: February 5-8, La Jolla, California.
2. Workshop proceedings conducted similar to the PFMC ToR for methodology reviews.
3. Workshop Chair and responsible Council Staff Officer:
 - a. André Punt
 - b. Kerry Griffin
4. Invited attendees/participants (including primary presenters and rapporteurs listed above):
 - a. SSC representatives: David Sampson, Tom Jagielo

- b. Oceanographers working on sardine-environmental relationships: Sam McClatchie, David Demer, Dave Checkley, Martin Lindegren, Tony Koslow, Enrique Curchister
 - c. Assessment biologists: Kevin Hill & Paul Crone
 - d. Developer of a risk assessment projection model code: Felipe Hurtado
 - e. Integrated Ecosystem Assessment (IEA) scientists involved in developing California Current ecosystem models: Brian Wells
 - f. Conductors of the original CPS FMP Amendment 8 analyses: Richard Parrish and Larry Jacobson
 - g. CPSMT representatives: Lorna Wargo, Cyreis Schmitt, Chelsea Protasio, Kirk Lynn, Kevin Hill, Paul Crone, Sam Herrick, Alan Sarich
 - h. CPSAS representatives: Diane Pleschner-Steele, Sarah McTee
 - i. NMFS SWR representatives: Josh Lindsay, Mark Helvey
 - j. Council Member: David Crabbe
5. Documents due at least a week prior to the workshop (available at <ftp://swfscftp.noaa.gov/users/jmcdaniel/>)
- a. Draft mathematical specifications for a risk assessment projection model (Felipe Hurtado, Andre Punt, Kevin Hill, Larry Jacobsen, Richard Parrish, Alec MacCall)
 - b. Documents describing the analysis supporting new alternatives for
 - i. Sardine productivity and oceanographic variables (Sam McClatchie and Larry Jacobson; Dave Checkley and Martin Lindegren);
 - ii. USA stock proportion (David Demer).
 - c. Summary of ecosystem models for the CC (Isaac Kaplan, Brian Wells).
 - d. White paper: Review of CPS Amendments 8 and 13: Genesis and Concepts (Josh Lindsay)
 - e. Proposed agenda

Panel Members

Dave Checkley
 Paul Crone
 Enrique Curchister
 David Demer
 Kerry Griffin
 Mark Helvey
 Sam Herrick
 Kevin Hill (Obj. 3 Rapporteur)
 Felipe Hurtado
 Larry Jacobson
 Tom Jagielo
 Isaac Kaplan
 Tony Koslow
 Martin Lindegren
 Josh Lindsay (Obj. 2b Rapporteur)
 Kirk Lynn
 Alec McCall (Obj. 1 Rapporteur)
 Sam McClatchie
 Sarah McTee
 Richard Parrish
 Diane Pleschner-Steele
 Chelsea Protasio

André Punt (Chair)
David Sampson
Alan Sarich
Cyreis Schmitt
Brian Wells (Obj. 3 Rapporteur)
Lorna Wargo
Russ Vetter (Obj. 2a Rapporteur)

PFMC
03/25/13