

Comments Pacific Sardine Management in 2012

Geoff Shester, Ph.D.

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Temperature-Recruit Relationship

- *“We demonstrate that the environmental proxy derived from SIO pier temperature ... no longer predicts recruitment of Pacific sardine, and should be removed from sardine management.”*
 - McClatchie et al. 2010.
- *“The SIO index ... is no longer correlated with sardine productivity”*
 - SSC Statement
- *“The temperature relationship underlying FRACTION in the harvest control rule needs to be revised”*
 - CPSMT Statement

DISTRIBUTION

From CPS FMP Amendment 8:

Estimates of the average distribution of CPS between the U.S. and Mexico based fish spotter data for 1964 through 1992 are given below. Fish spotters seldom enter Mexican waters during the winter and spring when CPS are most abundant in southern areas and search effort in Mexican waters has been limited in recent years. Portions in the table are, therefore, best thought of as summer-fall estimates.

Fish Spotter (Summer-Fall) Distribution

Species	United States	Mexico
Pacific (Chub) Mackerel	84%	16%
Jack Mackerel	75%	25%
Pacific Sardine	87%	13%
Northern Anchovy	98%	02%

Pacific sardine catches in 2010 as % of total (From Draft 2011 Assessment)

United States	Mexico	Canada
46%	39%	15%

International Management

- Mexican and Canadian catch undermine objectives of control rule and ability to achieve OY, and risk coastwide overfishing
- Council should ask NMFS to engage with US State Department to pursue international management agreement
 - (e.g., tunas, whiting)



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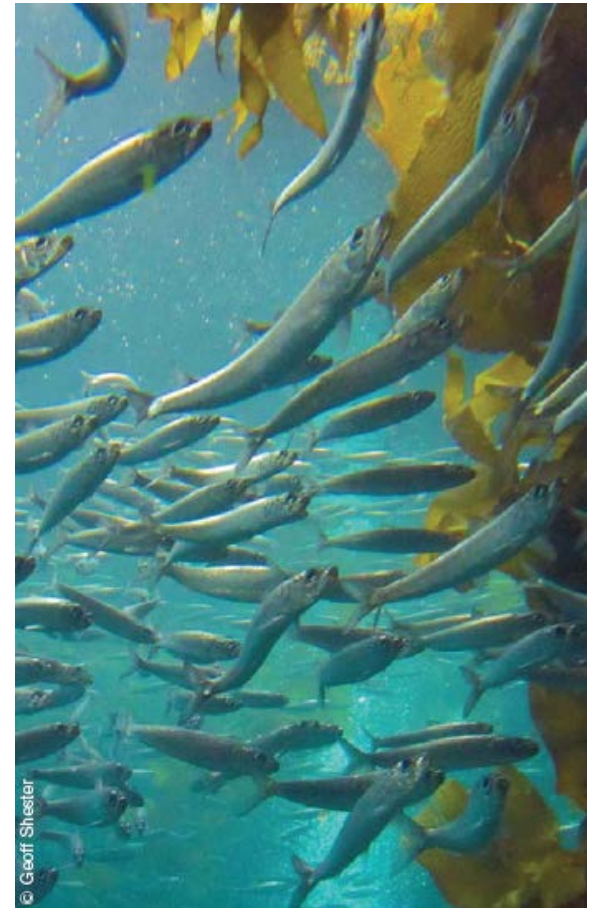
Bryde's whale inhales a mouthful of Pacific sardine

CUTOFF

- Important safeguard when sardine abundance declines; higher cutoffs mean fewer years of low biomass
- Post-hoc “forage set-aside” justifications are flawed
 - No analysis of sardine predators, their consumption of sardines, or their economic value
 - No assessment of whether 150,000 MT cutoff ensures adequate forage

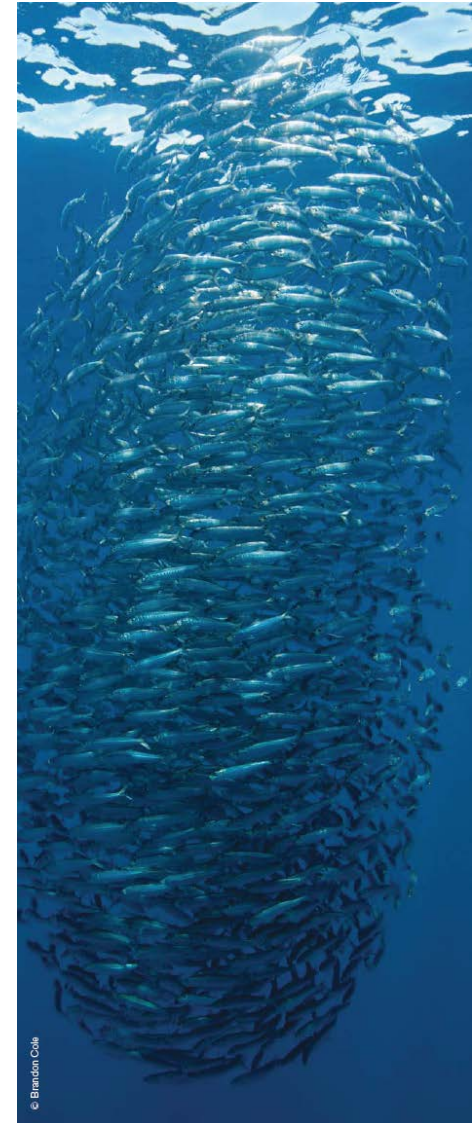
Summary

- Temp-Fmsy relationship used in the sardine HCR calculations is not best available science
- The current HG is still based on the Amendment 8 analysis
- Forage is not clearly accounted for
- There is major uncertainty in Fmsy, yet this is not reflected in σ
- Use of an 87% distribution without an international agreement results in chronically exceeding the HCR



Request Council Set Low P* for 2012

- Recognized flaws with current HG parameters
- Updated Fmsy is be “strictly interim” (SSC)
 - Uncertainty in Fmsy not accounted for
- “Substantial uncertainty” in 2011 stock assessment (SSC)
- Importance of Pacific sardines as forage in CCLME



Set more conservative ACL

Smith et al. 2011 Recommendations	$\frac{1}{2}$ Fmsy	Btarget = B75%
Amend 8 Original	6%	~2,300 TMT
Amend 8 Revised	9%	~1,700 TMT

Workshop Objectives

1. Update/document the Amendment 8 simulation model
2. Remove temperature relationship from HCR
3. Re-evaluate CUTOFF to provide adequate forage
(make forage considerations explicit and transparent)
4. Re-evaluate DISTRIBUTION
5. Evaluate a range of harvest control rules