

# Comments on Pacific Sardine 2014-2015 Harvest Specifications

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Testimony to PFMC  
April 9, 2014

# Oceana requests PFMC set zero quota for 2014-15 Pacific sardine fishery

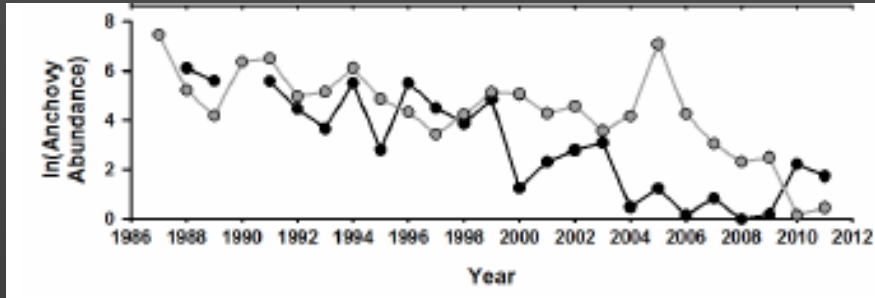
- Pacific sardine stock continues to decline (74% decline since 2007)
- No clear signs of recovery, SSTs going down
- Current SSB (306,237 mt) is far below critical biomass threshold\* (740,000 mt)
- CUTOFF in HCR is far too low
- DISTRIBUTION remains broken
- Low Sardine (and anchovy) biomass failing to provide adequate forage for dependent predators



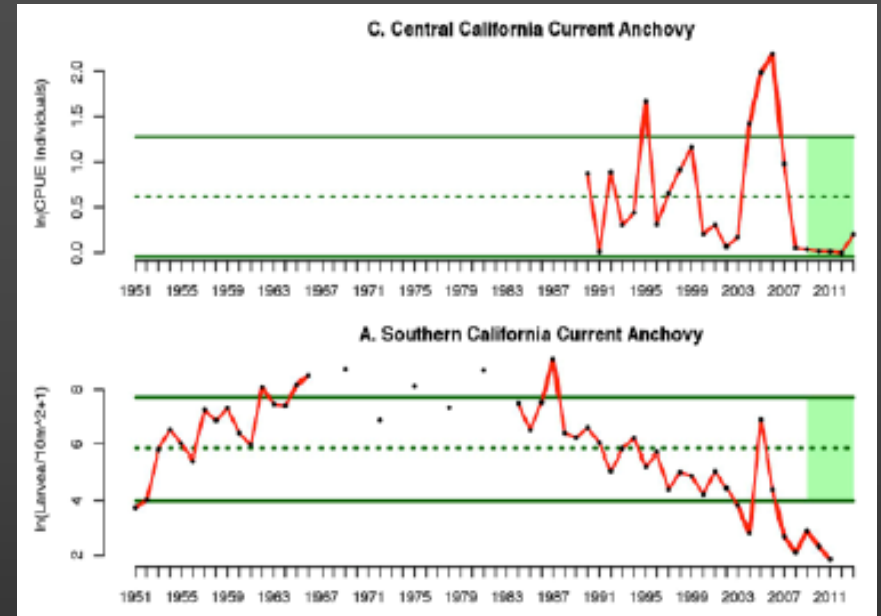
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\* Critical biomass threshold identified in Zwolinski & Demer 2012.

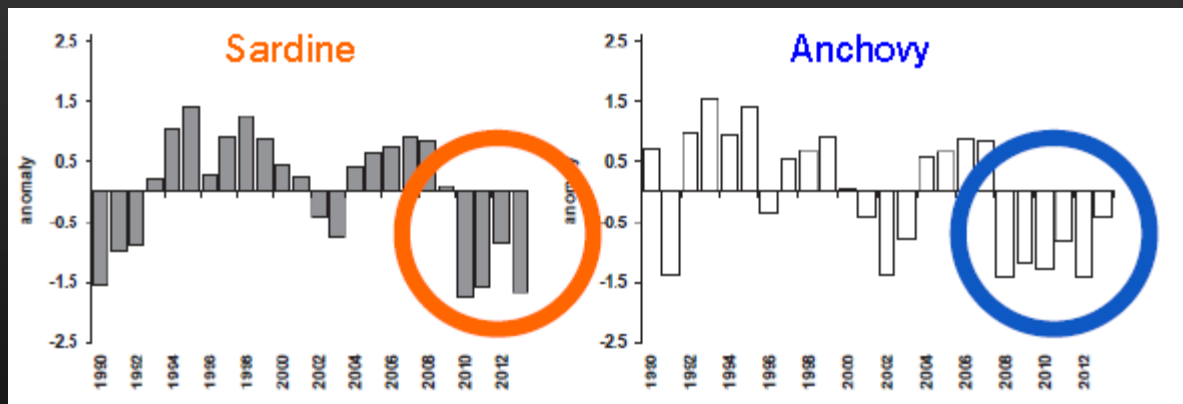
# Available Indices: Anchovies Low



CalCOFI (Sydeman et al. in press)



CC IEA, March 2014



CC IEA, March 2014

# Evidence of Inadequate Forage

Specifically Sardine and Anchovy

- **California Sea Lions** – Unusual Mortality Event of 2013 (Melin et al., NOAA, 2014)
- **Brown Pelicans** – Nesting Failures (Harvey 2013)
- **Tufted Puffins** – ESA Listing Petition (NRDC 2014)



*Ingrid Overgard/TMMC*

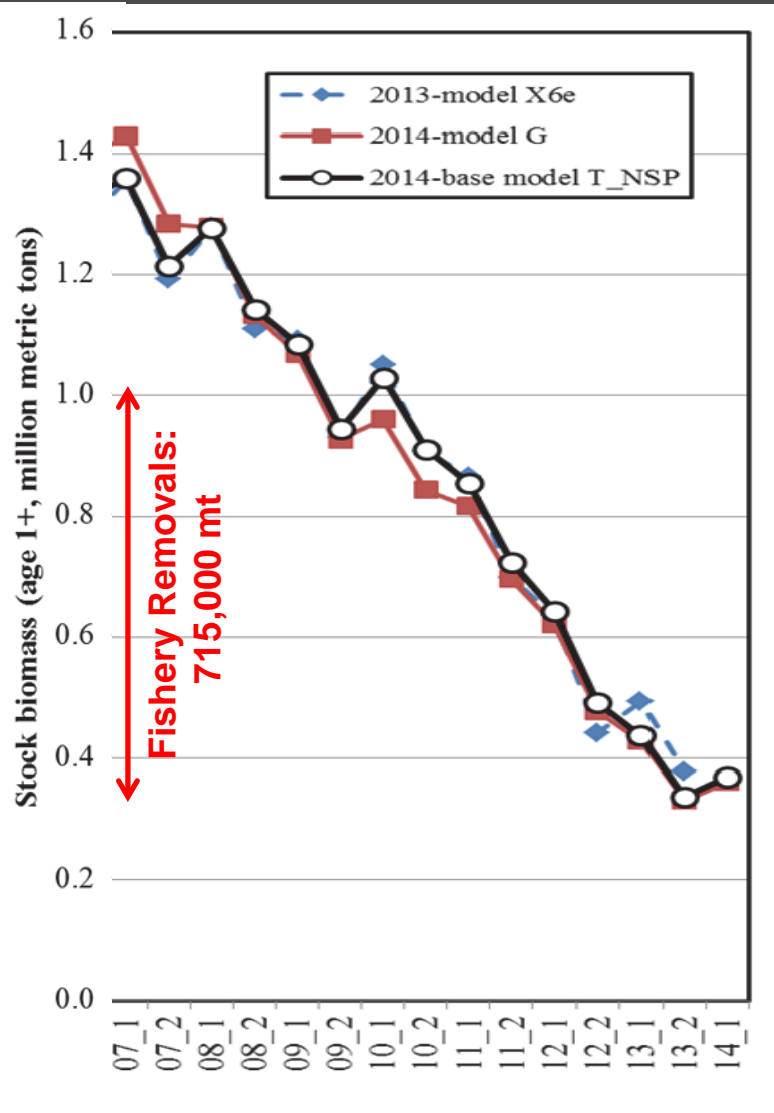


*Ingrid Taylor*



*Geoff Shester/Oceana*

# Current Collapse: The Role of Fishing



- Decline (2007-2014):
  - 1,050,000 mt (74% drop)
- Fishery removals (N. Subpop only):
  - 715,000 mt
- 68% of decline “mined” by the fishery
- No “surplus” production
- Any fishing is overfishing

# CUTOFF is Too Low

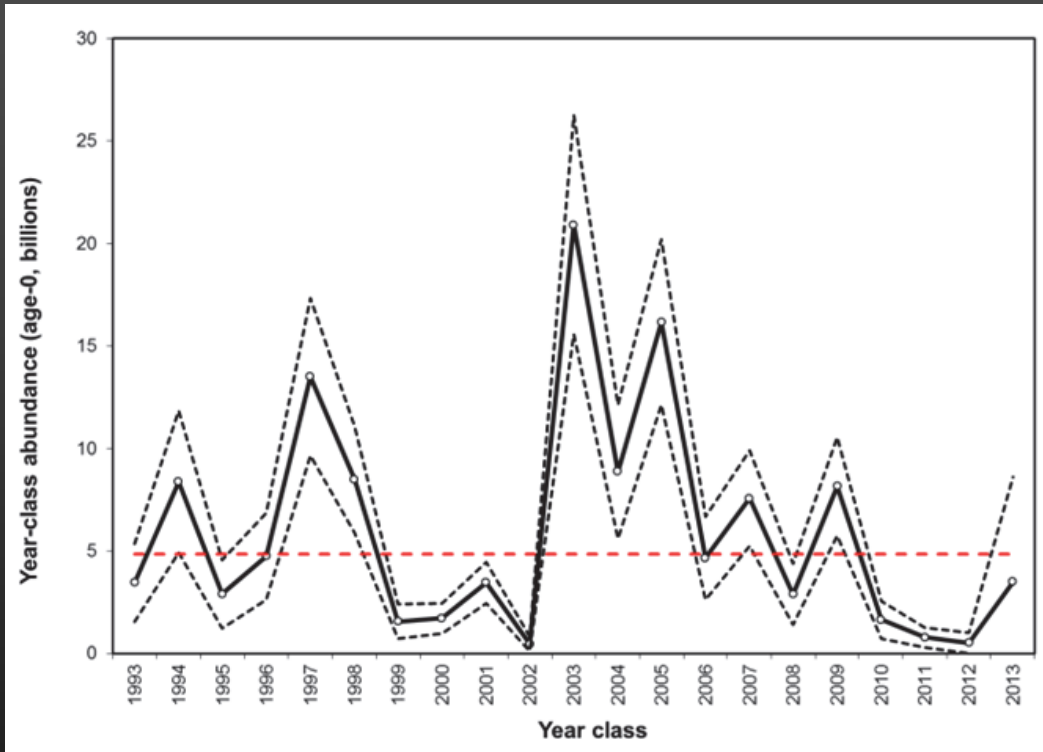
- CUTOFF must explicitly be used to provide adequate forage to dependent predators (this is a goal of the CPS FMP)
- Current CUTOFF not high enough to:
  - Reduce stock risk
  - Maintain high biomass
  - Provide adequate forage
  - Address uncontrolled Mex/Can landings
- Should be at least 40% of mean unfished biomass (640,000 mt)



# Oceana's Proposal

Parameters	Current HG	Oceana Proposed Harvest Control Rule
<b>CUTOFF (B1+, mt)</b>	150,000	640,000
<b>FRACTION</b>	5-15% (SIO index)	5-15% (CalCOFI index)
<b>MAXCAT (mt)</b>	200,000	300,000
<b>DISTRIBUTION (U.S.)</b>	87% of TOTAL HG	TOTAL HG - Lmexico - Lcanada
<b>MSST (1+, mt)</b>	50,000	640,000
<b>OFL (TOTAL)</b>	18% of Biomass (1+)	Emsy (0-25%) based on CalCOFI
<b>OFL (US)</b>	87% of TOTAL OFL	TOTAL OFL - Lmexico - Lcanada

# Phantom 2013 Year Class



“The 2010 to 2012 year classes were among the weakest in recent history. The 2013 year class, derived largely from the predicted stock recruitment curve, was poorly estimated ( $CV=0.73$ ), but included in calculation of total stock biomass (age 1+ fish, mt) for July 2014.” Hill et al. 2014, p. 6.

“The declining trend in SST, along with poor recruitments in 2010, 2011, and 2012 leads to some concern that the 2013 recruitment estimate in the assessment may be biased high.” SSC April 2014



# Best Available Science on FRACTION

- FRACTION should be below CalCOFI-based Emsy (0.122)
- SST is on a downward trend
- HG has been consistently overestimating sardine productivity
- CPS FMP intent: Decrease FRACTION to 5% during periods of low sardine productivity

## Harvest Formula Parameters

BIOMASS (ages 1+, mt)	369,506
P-star	0.45
ABC Buffer <sub>Tier 1</sub>	0.9558
ABC Buffer <sub>Tier 2</sub>	0.9135
CalCOFI SST (2011-2013)	15.335
$E_{MSY}$	0.122
FRACTION	0.15
CUTOFF (mt)	150,000
DISTRIBUTION (U.S.)	0.87

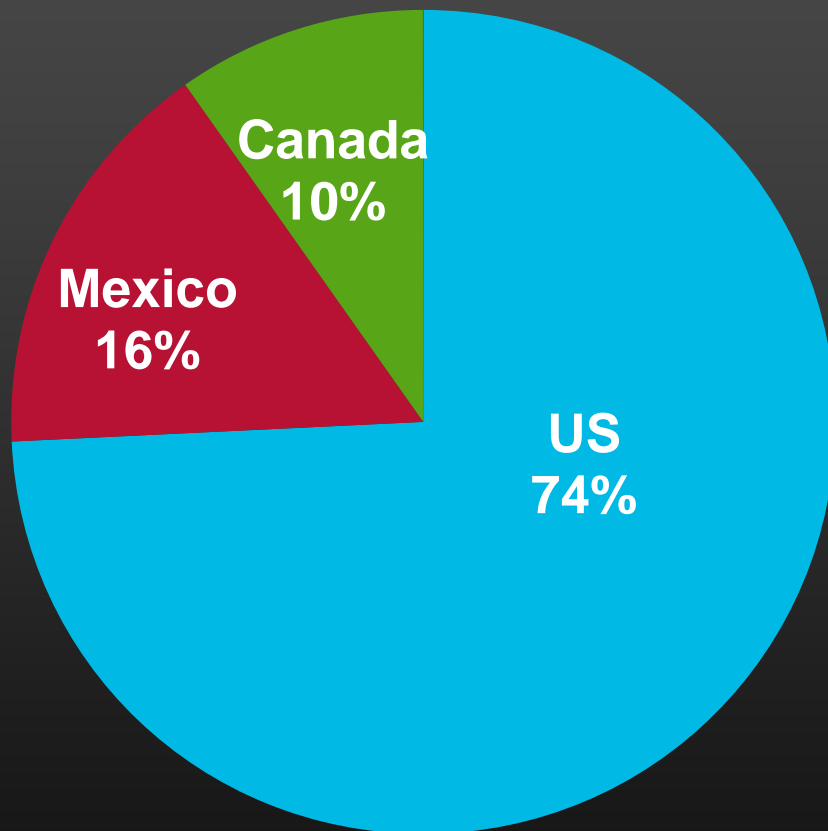
# Ramifications of Separating Northern and Southern Subpopulations in Assessment

- Southern subpop NOT in CPS FMP (FMP analyses & MSE based on assumption of mixed stock)
- So Cal Fishery targeting and landing S. subpop (~40% of So Cal US landings in last 10 years\*)
- Managing fishery on S. subpop based on assessment of N. subpop violates best available science
- We request Council/NMFS add S. subpop to CPS FMP (as is done with N. Anchovy)

# DISTRIBUTION still needs to be fixed

(DISTRIBUTION Currently set at constant 87%)

## Distribution of Pacific Sardine Landings attributed to N. Subpopn. (2004-2013)



### Ramifications:

- Failing to achieve goals of CPS FMP and prevent overfishing
- Not using best available science

# Three Ways to Fix DISTRIBUTION

When Mexico and Canada Aren't Following the US Harvest Guideline

- Set HG and OFL based on coastwide assessment then subtract most recent year's landings from Canada and Mexico
- Estimate the portion of the sardine stock in US waters (recommended in CPS FMP) in the stock assessment
- Use CUTOFF to account for foreign catch

# Conclusion

- Available data warrants extreme precaution  
– give sardines a break!
- Reassess CUTOFF to:
  - Provide adequate forage
  - Prevent overfishing
  - Address international dilemma
- Fix DISTRIBUTION
- Start managing Southern Subpopulation  
(add to CPS FMP)
- Move toward an assemblage approach to  
achieve OY for CPS

