

Pacific Sardine Fishery Management

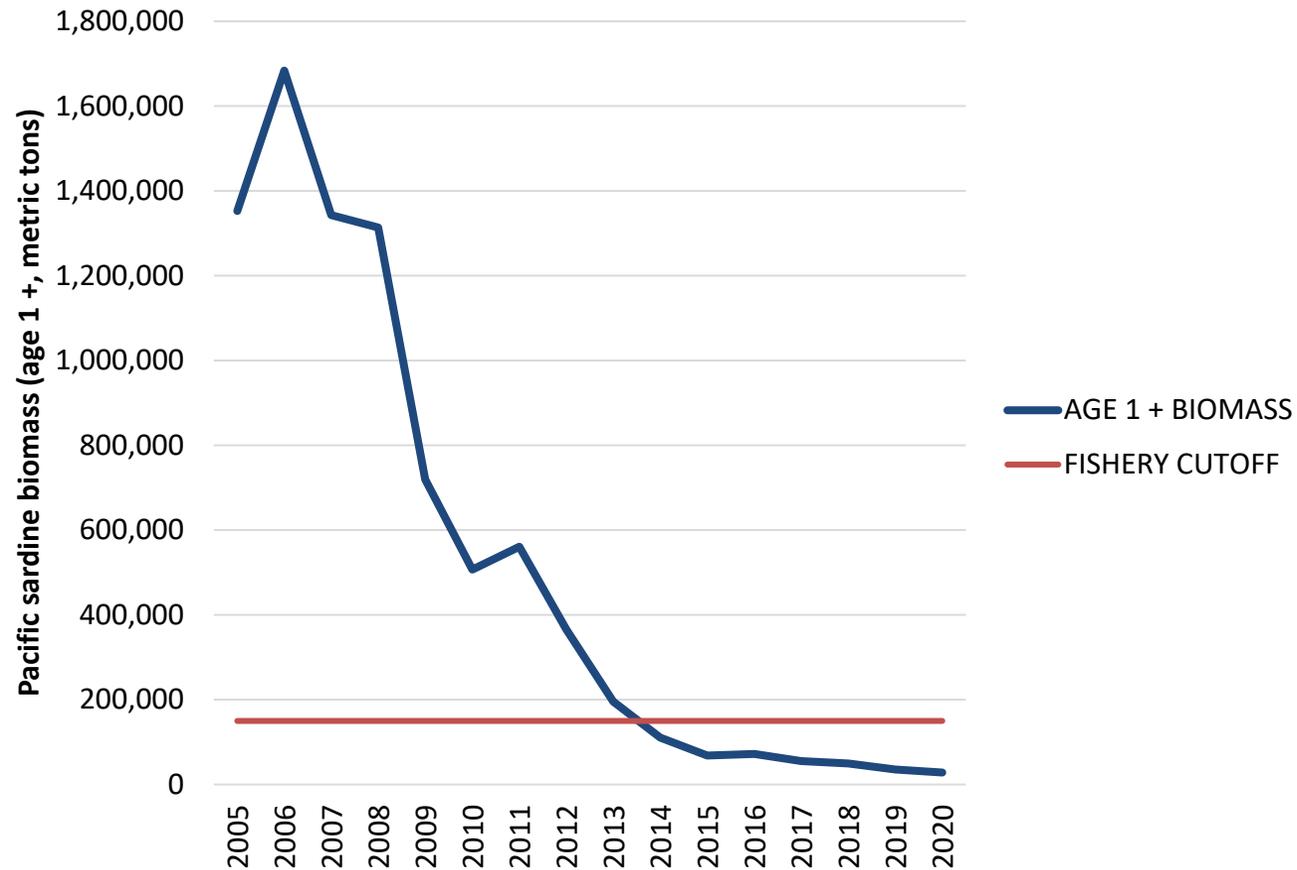
Time to Rebuild & Reform



Ben Enticknap
April 6, 2020

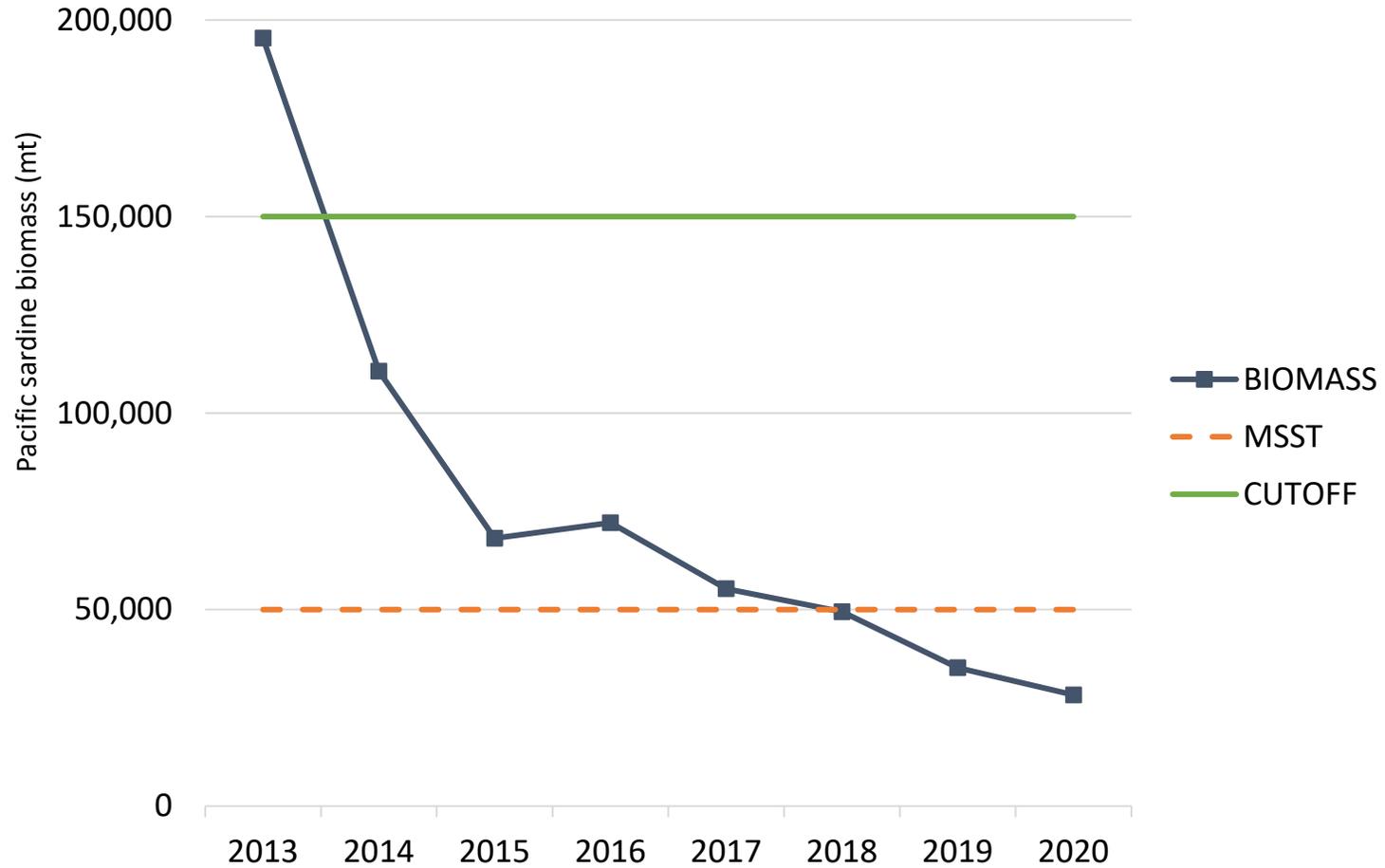


Pacific Sardine Biomass

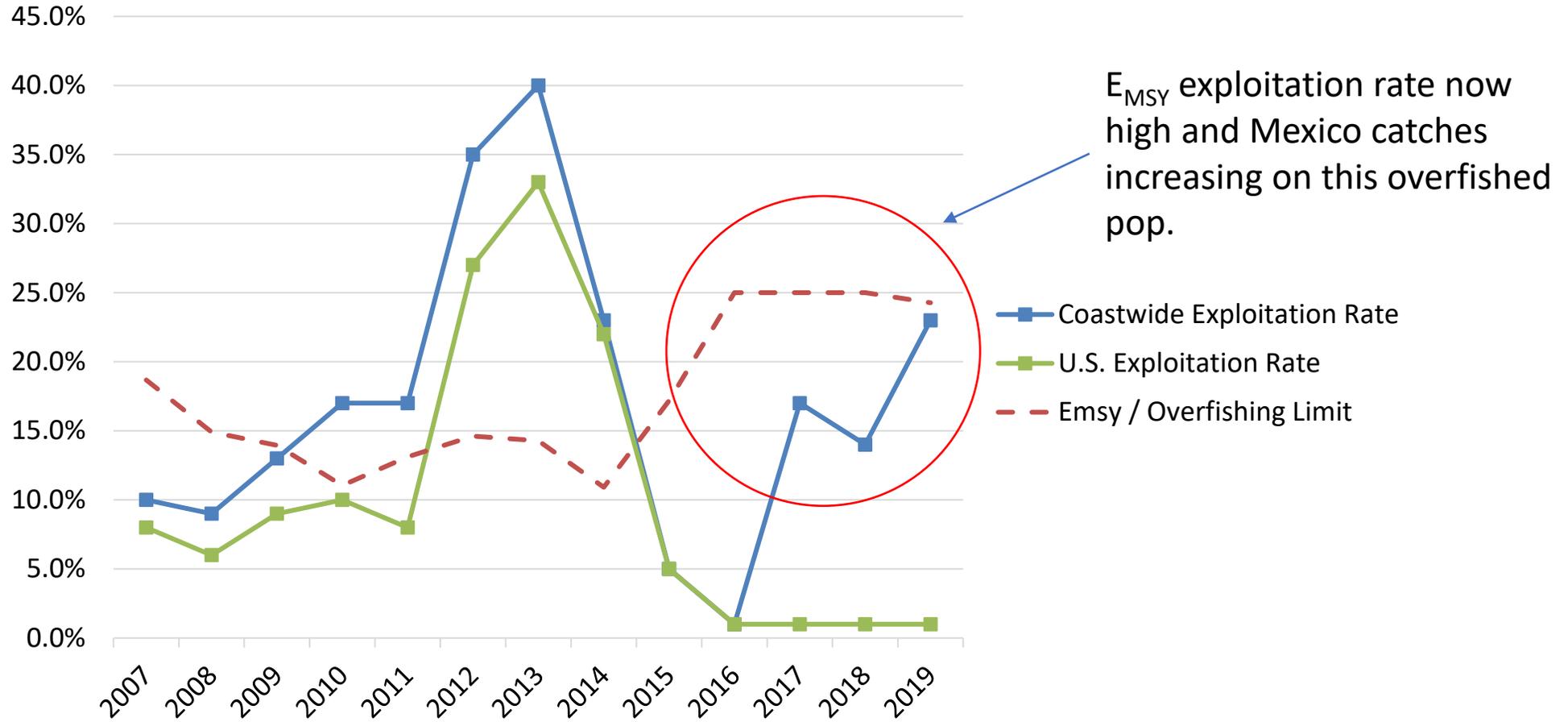


Data from: Kuriyama et al. 2020. Assessment of the Pacific sardine resource in 2020 for U.S. management in 2020-2021. Pacific Fishery Management Council, Portland, OR.

Pacific Sardine are Overfished

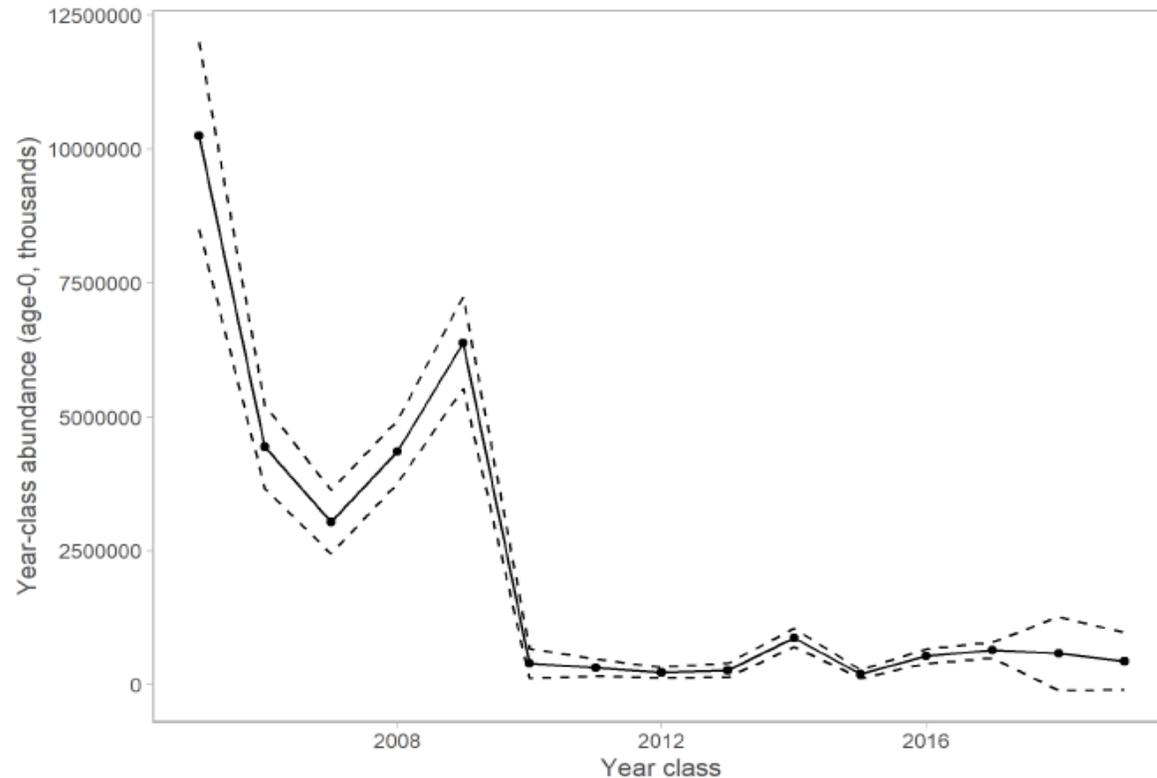


Annual Pacific sardine (northern subpopulation) exploitation rates and overfishing limit



MSY fishing rates exceeded for 5 years during the stock collapse

Low recruitment since 2010



Meanwhile MSY exploitation rate is set too high, at 22%, using the CalCOFI temperature index which predicts high sardine recruitment

Estimated Pacific sardine recruitment (age-0, thousands of fish) (figure ES-2 in the 2020 assessment).

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Re-evaluation of the environmental dependence of Pacific sardine recruitment

Re-evaluation of the environmental dependence of Pacific sardine recruitment

Juan P. Zwolinski David A. Demer

Available

https://usa.oceana.org/sites/default/files/593/zwolinski_and_demmer_-_2019_-_re-evaluation_of_the_environmental_dependence_of_p.pdf

Highlights

The SST index used to calculate E_{MSY} in the harvest guideline, OFL and ABC for Pacific sardine no longer explains the stock's productivity and "is likely invalid".

Proxies for fish stock productivity are fallible and should be avoided in management rules.

Fishing mortalities instead could be based on measurements of recent stock productivity inferred directly from surveys or assessments.

2020-21 Management Recommendations

- Keep the directed fishery closed
- Set the bycatch limit in other CPS fisheries – the incidental catch allowance – at no more than 10% of landings.
- Set an ACL of 1,000 metric tons for live bait, bycatch and minor directed fisheries.
- Do not authorize sardine landings under CPS EFPs.

1+ Biomass (mt)	MSY exploitation rate (EMSY)	OFL	ABC buffer (Tier 2, P*=.40)	ABC	ACL
28,276	0.05	1,414	0.7762	1,097	1,000

OFL = Biomass * E_{MSY} * Distribution (where E_{MSY} is bound between 0 and 0.25)

Management Reform Is Needed

- Change the start date of the fishery to January 1 and use the results of the acoustic trawl survey in a timelier fashion as recommended by the STAT team and in past STAR panel reports.
- Update the MSST value for Pacific sardine to reflect the best available science as presented in the NMFS 2016 analysis.
- Consider modifications to the harvest control rule to prevent future overfishing and reduced impacts on sardine predators: Fix DISTRIBUTION, Increase CUTOFF, use best available science in determining E_{MSY}
- Initiate actions to develop a coordinated tri-national approach to sardine management and rebuilding



Address International Overfishing

- Criteria for Determination: 50 C.F.R. § 600.310 (k) “overfished” and “excessive international fishing pressure”
- Council should request Secretary of Commerce make this determination based on 2020 stock assessment
- Evidence: 2020 stock assessment shows stock remains overfished and international exploitation rate of 23%
- Develop and submit recommendations to Secretary of State and Congress within one year

Pacific sardine rebuilding plan

By September 2020, ensure a complete range of alternatives, including alternatives that:

- Prohibit directed sardine catch under EFPs;
- Reduce incidental catch allowances below 20% (including 5% and 10%).
- Close the live bait fishery
- Limit the live bait fishery below current average levels.