

SARDINES IN CALIFORNIA

FISHERY IN CRISIS



Conflict is between what fishermen say is out there,
based on what they see, and what biologists say,
based on insufficient science



6,000 tons sardine observed in 60 ft. water near Seal Beach –
61 degree water 4/1/19

We planned to share video highlighting the
fishery crisis in CA ~
and ask the Council for help

<https://youtu.be/uaps0Vz5XOA>

The video is posted
on YouTube

Please watch.



“Tremendous amount of fish – too many schools to count” ~ Corbin Hanson

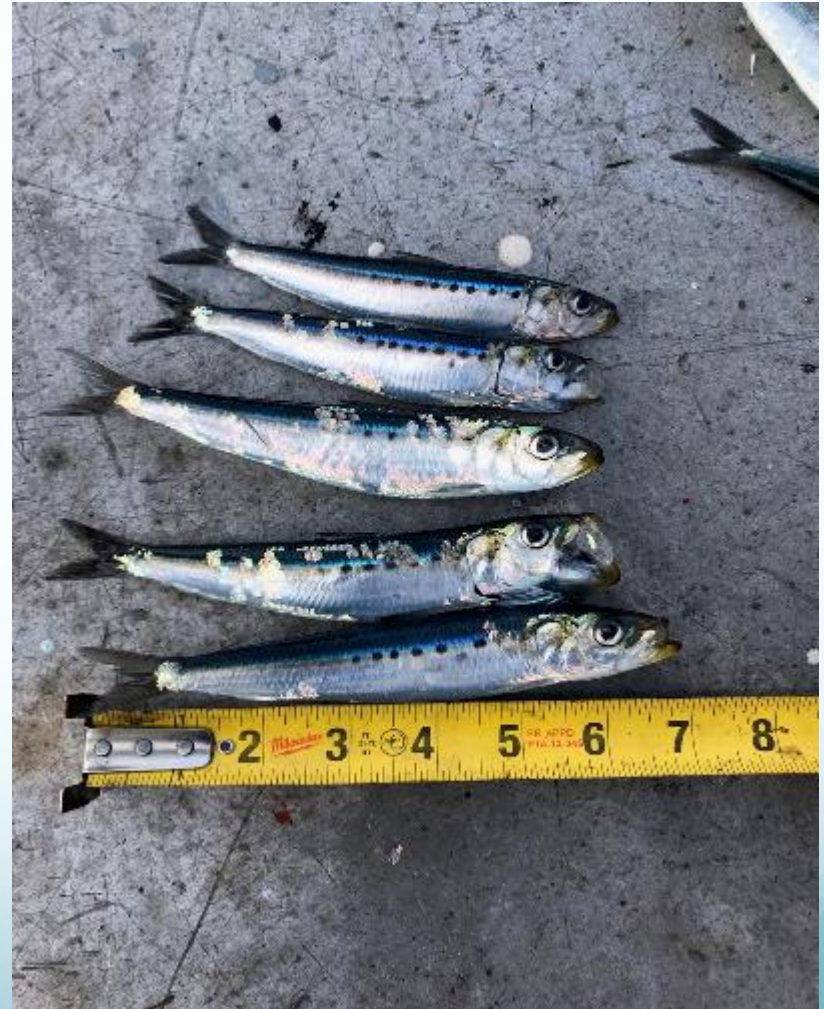
Sardine assessment says no evidence of recruitment ~ BUT

- **Abundant evidence of recruitment since 2015**

- ~ Juvenile Rockfish Survey

- ~ Small sardines captured 3/26/19 as part of 30-ton point set near Gaviota, above Santa Barbara ~

- ~ Fishermen have seen and testified: tens of thousands of tons of sardine in CA (in water $< 16.7^{\circ} \text{C}$ – 62°F)



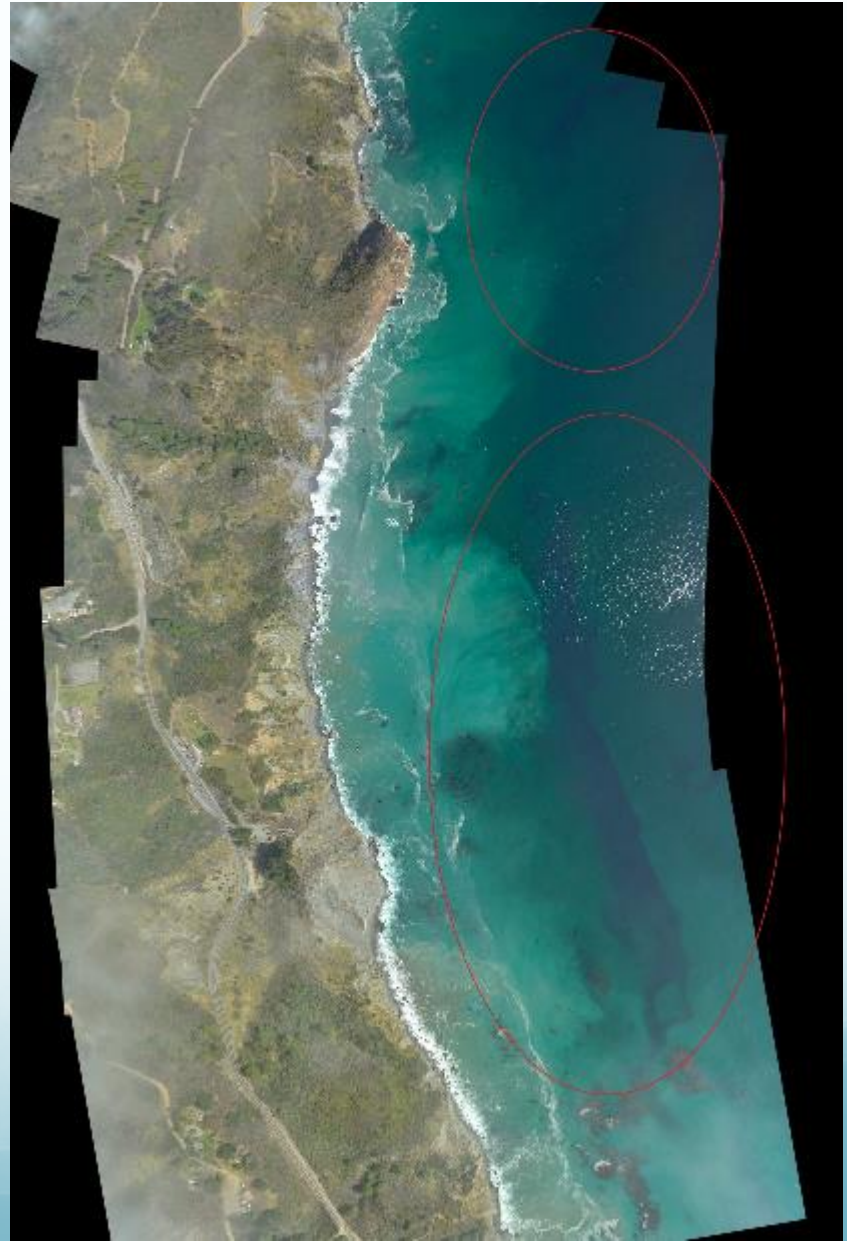
Live Bait Haul 3/17/19



Outside Marina Del Rey Harbor ~ plentiful 5-inch sardines in 40 ft. water

70%+ of sardines in CA NOT documented

- Most CA catch inside 20 fa curve
- 4,000 of est. 13,000+ tons observed near Big Sur ~ Oct. 2018
- 47% of est. coast-wide biomass of 27,547 mt
- Inshore of NOAA AT surveys



Many Many Many Many Observations

- Fishermen have reported recruitment and plentiful sardines in CA since 2015 (evidence in live bait pens)
- Observations of YOY sardine and adults were documented in Juvenile Rockfish Surveys (2015 - 2018)
- CalCOFI Report Vol. 60:
- "The CCE experienced a mild El Niño from late 2018 into 2019...
- In central California, market squid and **Pacific sardine (*Sardinops sagax*) were also abundant. "**
- **RECRUITMENT HAS HAPPENED, SARDINES ARE HERE!**

Importance of CA Wetfish Industry to CA fishing economy

- Until recent years, CA's complex of of CPS fisheries produced **80+% of volume, 37% dockside value** of total statewide commercial fishery harvest
- Important to many harbor communities ~ Volume is essential to maintain infrastructure, jobs
- Sardines are the foundation of CA wetfish industry

Port	Wetfish % of Total Port Landings	Wetfish % of Total Port XV Value
Monterey Harbor	97.5%	76.3%
Moss Landing	96.2%	66.3%
Ventura	98.7%	82% (squid)
Port Hueneme	99.9%	99.9%
San Pedro	99.6%	93.4%
Terminal Island	97.7%	81.4%
Contribution to Statewide Landings	82%	37%

Socio-Economic Impacts

- Agenda Item G.1.c, Supplemental CDFG Report, November 2007 ~ Sardine landings in other CPS fisheries (2001-2006)

When sardines were declared overfished (misnamed!), CPS FMP required reduction of incidental catch rate to 20% as part of rebuilding plan

Table 2. Sardine landed in other CPS fisheries in 2006 identified as the species with the greatest percentage (by weight) reported on the landing receipt (source CDFG CFIS database).

CPS Species	Metric Tons (Sardines)	Percent
Sardine captured in Market Squid Fishery	284	13.0%
Sardine captured in Bonito Fishery	0	0.0%
Sardine captured in Pacific Mackerel Fishery	701	32.0%
Sardine captured in Jack Mackerel Fishery	131	6.0%
Sardine captured in Anchovy Fishery	1,077	49.1%
Total sardine captured other CPS Fisheries	2,193	100.0%

At 20% incidental catch rate, FISHERMEN ARE FORCED TO FOREGO FISHING ON MOST MIXED FISH SCHOOLS TO AVOID SARDINE

Take Home Message

- CA wetfish processors and fishermen are really hurting:
 - @50% reduction in processing crews since sardine fishery closure in 2015
 - Boats tied to the dock for weeks on end
- Before 2015, CA's sardine fishery produced **average** annual sales impact > **\$16 million**
 - That value plummeted to **\$61,453 (1%)** in 2017
- Now : employment reduced 50% or more due to loss of fishing opportunity
- **CA'S WETFISH INDUSTRY NEEDS HELP NOW**

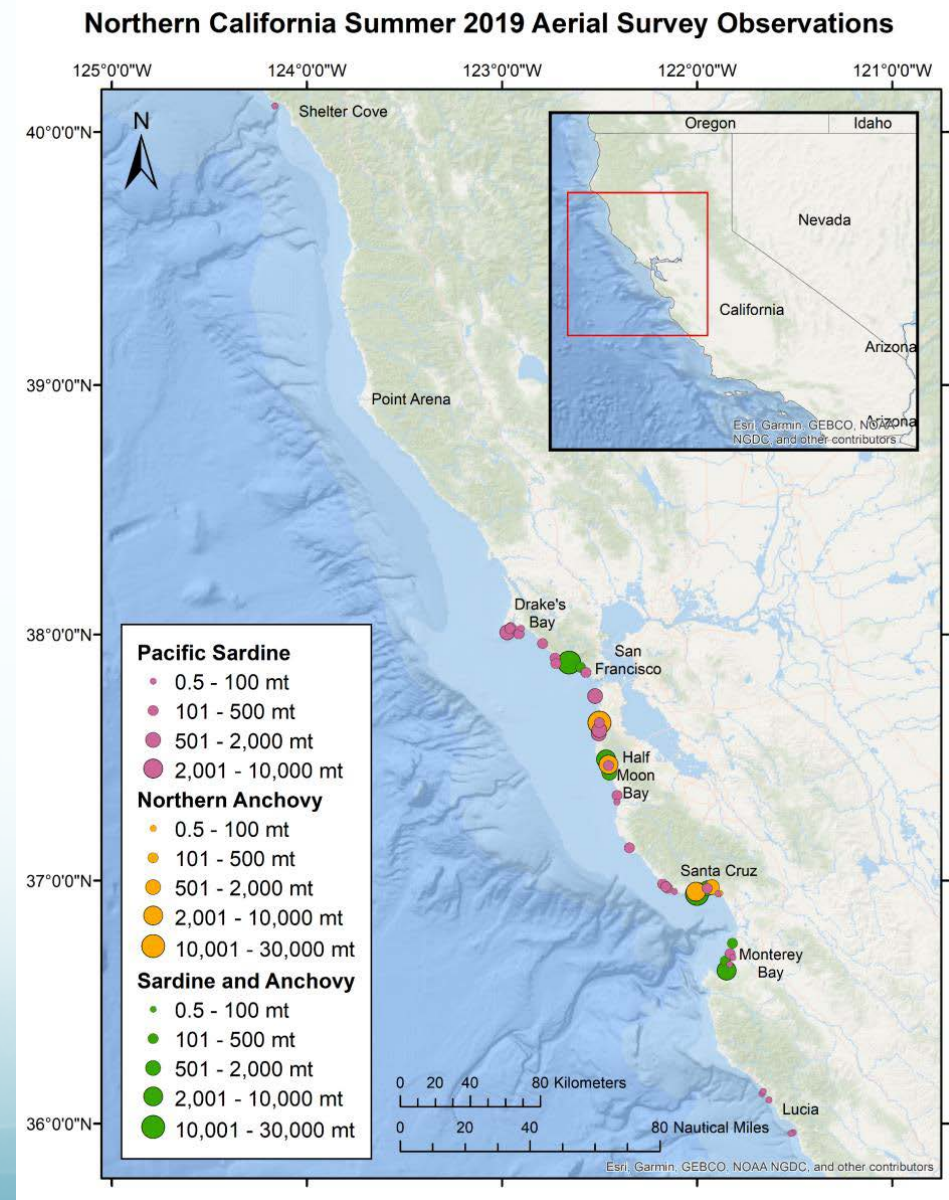
One glimmer of hope

- STAR Panel acknowledged sardine biomass nearshore in CA and approved model use of 2019 CDFW aerial survey as nearshore correction
- Aerial estimate in small area (survey was hampered by weather) reduced Q in AT survey by 30%
- Precedent set to use aerial survey data in future
- This is a Baby Step in the right direction

8/6-8/8/19

Sardine 12,279 mt

Anchovy 49,196 mt



How the Council can help:

- Support CWPA efforts to improve the science
 - EFP renewal for point sets supports continuing work to expand aerial survey research for Cen. Coast
 - New EFP necessary after Sardine STAR Panel:
 - Stock assessment report: No evidence of recruitment
 - No new age data in model since fishery closed in 2015
 - STAT did not use age from sardines in incidental fisheries
Prefers age data from directed fishing
 - Scientific Framework: At least 6 samples per semester per area – Monterey and S.CA.
 - S 1: July – December ~ S 2: January – June

How the Council can help:

- Support CWPA efforts to improve the science
 - New EFP:
 - Due to recent cancellation of spring AT and aerial surveys:
 - Propose to increase sampling in 2020 S 2 May and June to minimum **6 samples per area per semester, following the scientific framework developed**
 - Only bio / age data available for this semester
 - Only bio / age data for S.CA. "northern" stock
 - Can be accomplished by allocating about 600 tons from the 2,500+ mt **unused but already approved in 2019** (revised from Pub.Comm. appendix)
 - For the 2020-21 season:
 - 740 mt from 2020-21 ACT supports sampling throughout 2020-21 season
 - ACT similar to 2019 will allow all uses + the 3 EFPs
 - CDFW will sample and age all landings
 - **This will provide at least 6 samples per area per semester, provide bio / age data for the model for 1+ year**
Provide full calendar year data for 2020 update model + (STAT said this is a good idea!)
 - **Also will provide additional samples for aerial and acoustic surveys**

How the Council can help ~ 2:

- Please consider these recommendations:
 - Support use of **multiple indices at various times of year** in future stock assessments, not just one summer Acoustic Trawl survey with no replication.
 - If the 'northern' vs. 'southern' stock assumption persists, **recommend that the AT survey begin in CA** (when water temp is below 16.7 degrees C,) and survey the PNW later in summer, when sardines are more likely to be present in that area.
- High Priority :
 - **Conduct a methods review to review basis** for the **habitat model**
 - **Conduct a methods review** of the **Juvenile Rockfish Survey** so it can be used to inform recruitment
 - **Conduct an MSE** to evaluate use of AT surveys in the model and carry out improvements in methodology recommended in the 2018 AT Methods Review and other earlier reports.
 - **Re-evaluate model assumptions to learn why the assessment model predicts a continued decline in age 1+ biomass when AT survey abundance data show a strong increase**

Abundance data from the AT Survey contradicts continuing decline

- Why does the assessment model have a sharp decline in age 1+ biomass when the ATM abundance data show a strong increase?

Year	Table 6 Index	Table 8 Abundance	Table 15 Age 1+ Biomass
2017	14,103	171,695,016	33,082
2018	25,148	253,466,083	32,942
2019	33,632	343,115,319	28,275

- “The logical conclusion is that the ATM surveys are not seeing the total biomass, and should be considered as a **bare minimum estimate when considering management measures and a rebuilding plan.**”
(Richard Parrish, D.3 Pub. Comm. Apr '20)

What next?

- The logical conclusion is that ATM surveys are not seeing the total biomass (Q is not 1), and should be considered as **bare minimum relative estimates when considering management measures** (and a rebuilding plan).
- **Please approve ACT no lower than 2019 levels**
 - i.e. 2,500 mt limit for live bait
 - The 3 EFP requests can be accommodated within a 4,000 mt ACT (without curtailing incidental catch in other fisheries or small-scale landings)
 - Prelim.landings ~ more than 2,500 mt left over from 2019 ACL.
 - In-season management is accurate and effective
- **In reality, sardines are NOT OVERFISHED and overfishing is NOT occurring!**

If boats are tied to the dock, processors' doors closed

- If CA's wetfish industry is decimated due to further cuts in an already precautionary harvest policy ...
 - Then the Council has not taken into account the socio-economic needs of fishing communities.
- **Balance is a key mandate of the Magnuson Act**
- A council is required to consider the needs of fishing communities, not just biology, in developing rebuilding measures
- Please consider these issues and uncertainties raised and **"combine scientific underpinning with practicality and common sense."** (Chris Oliver, Assistant Administrator for Fisheries)
- **Please help save California's historic wetfish industry!**

Questions?

