Agenda Item E.1.b
Supplemental SWFSC Presentation 1
November 2018

NMFS Report
SWFSC Activities
Coastal Pelagic Species

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Southwest
Fisheries
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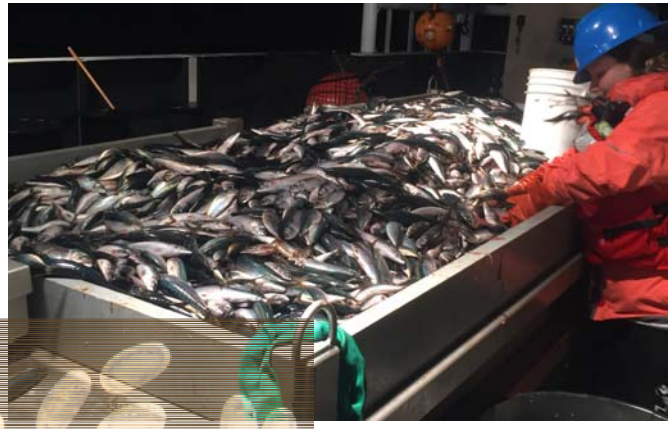
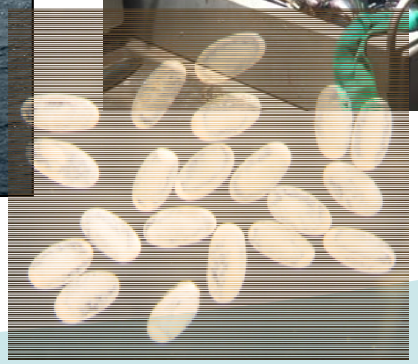
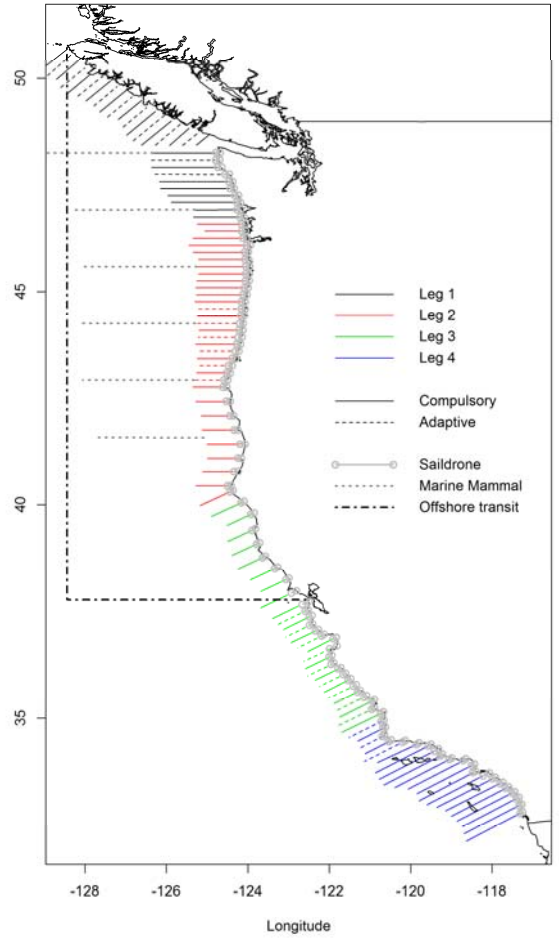
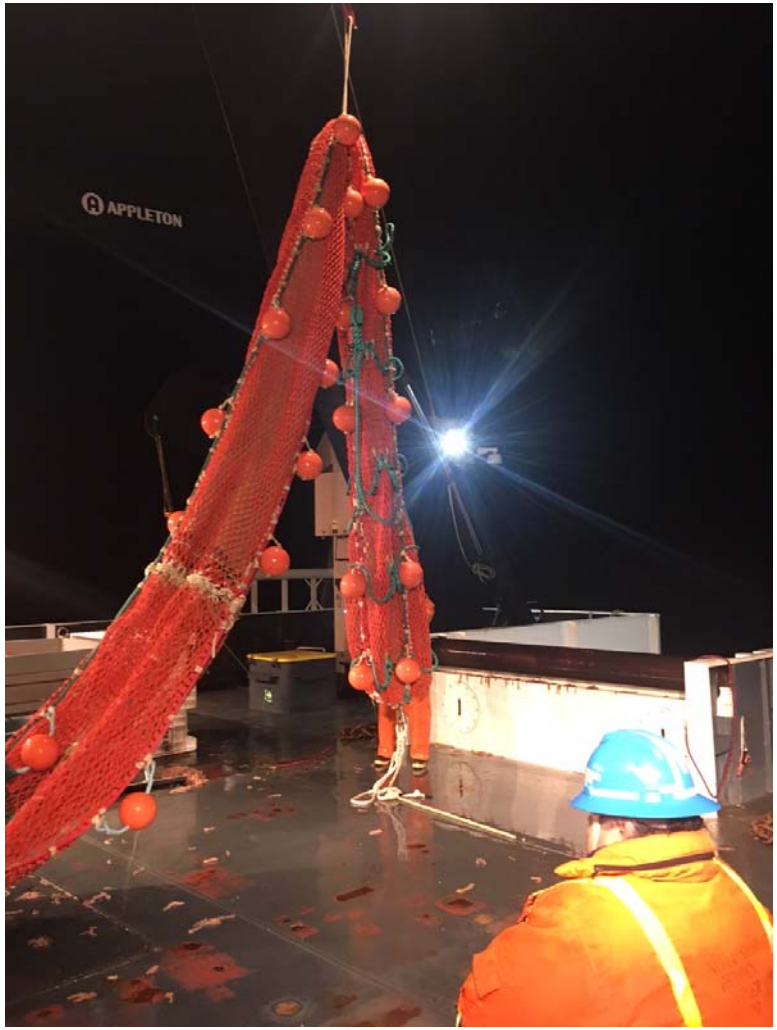






Presentation Outline

1. Research Survey Updates
   - 2018 Joint CPS/MMTD Survey
   - 2019 Survey Plans
2. Northern Anchovy Biomass
   - 2017 DEPM Estimate
3. ATM Review Update
4. CPS Stock Assessment Prioritization



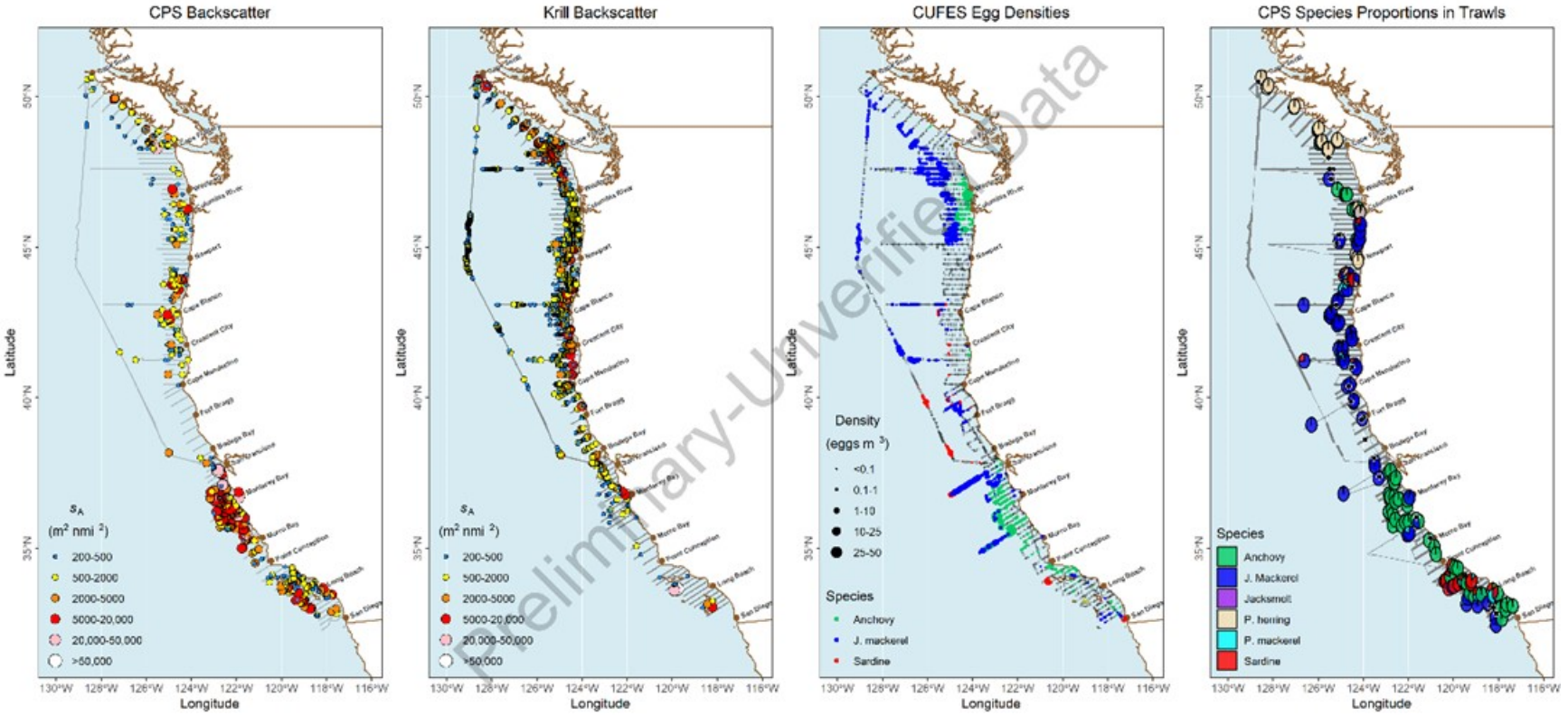
Summer 2018 Joint CPS-CalCURCEA Survey

Goal: Estimate Abundance of:

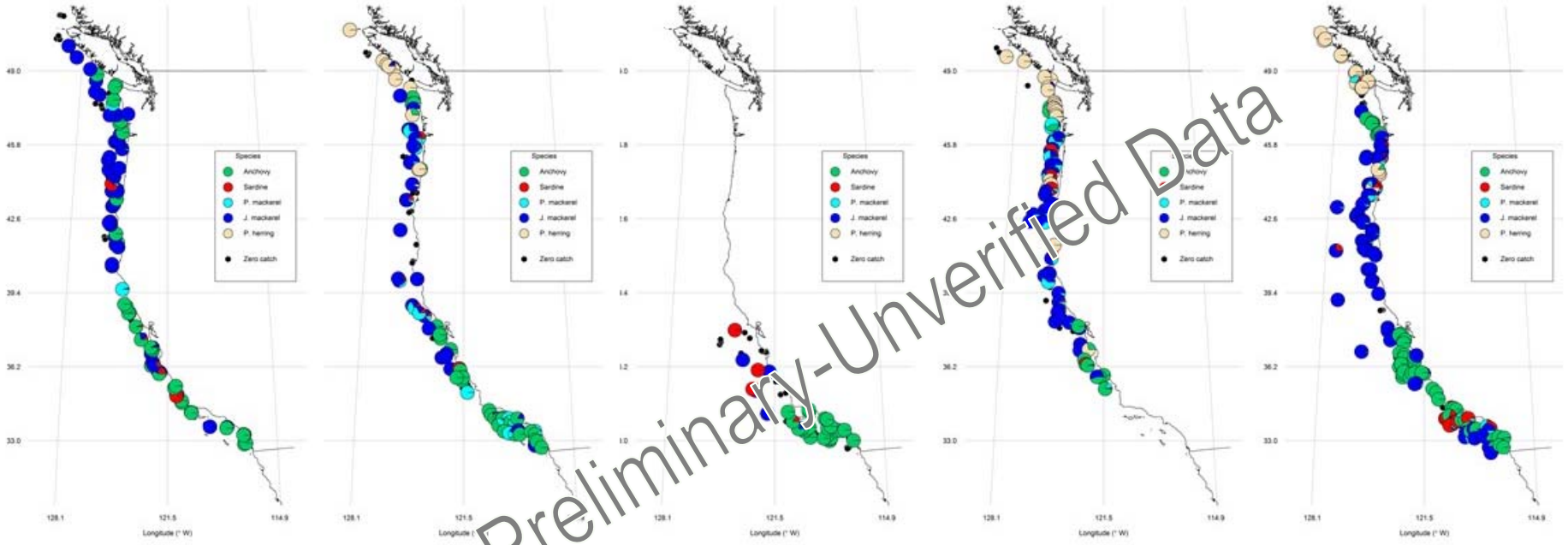
- CPS and Krill
- Mammals and Seabirds

Operational Characteristics:

- 80 Days, 26 Jun -23 Sep
- 106 Transects, 5,122 nmi
- 167 Trawls

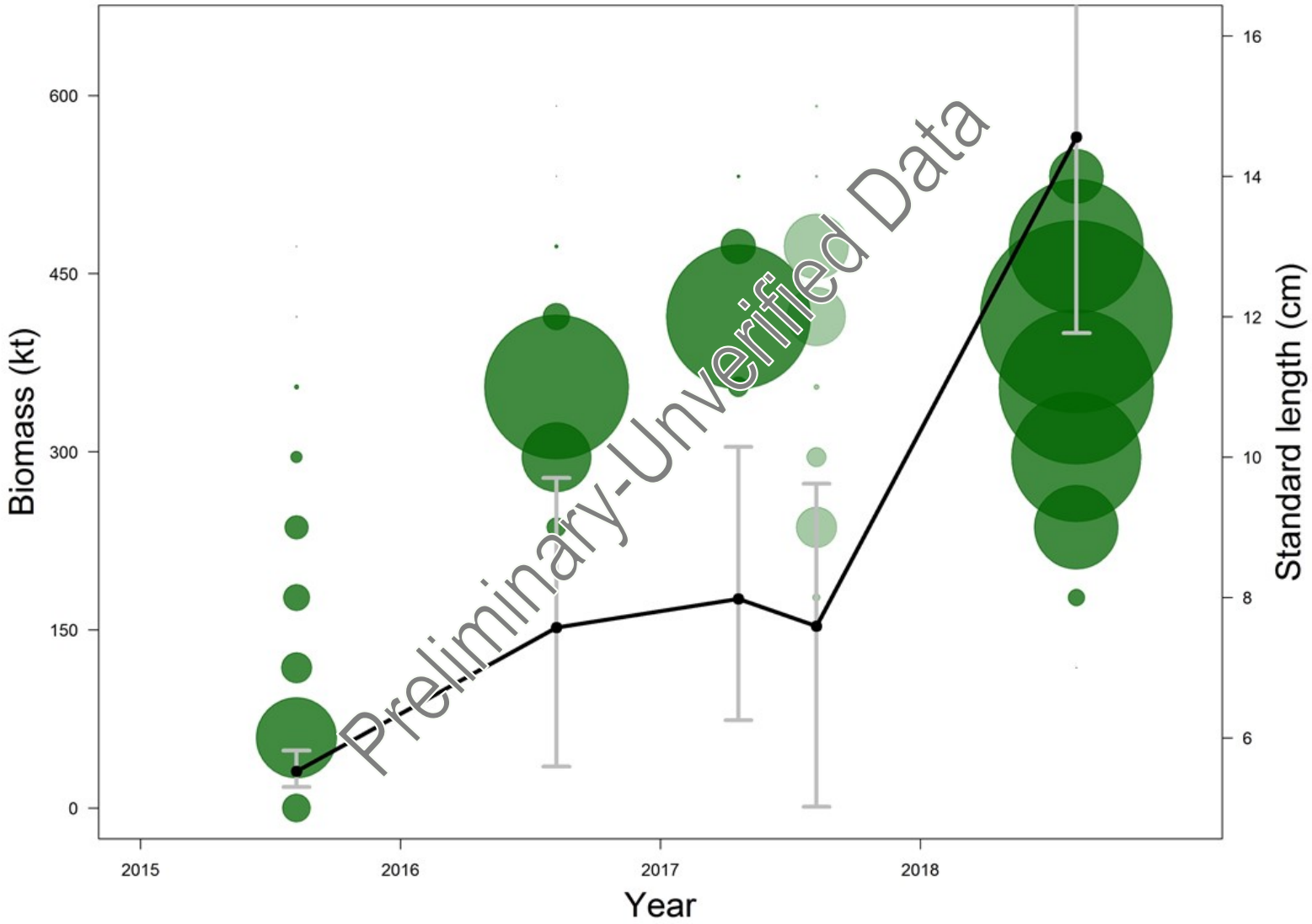


Northern Anchovy



Summer 2015 Summer 2016 Spring 2017 Summer 2017 Summer 2018

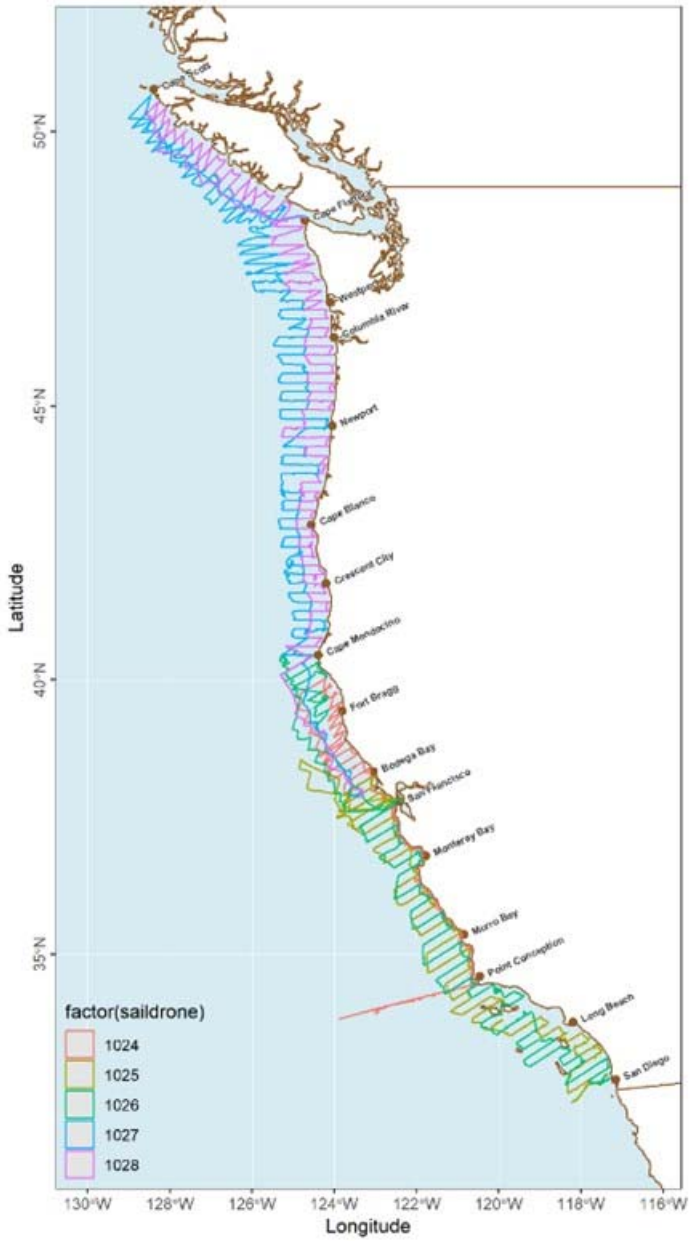
Anchovy Lengths and Biomass



Saildrone Surveys

- 5 Saildrones:
- 4 Replicated Ship's Transects
- 1 Surveyed Nearshore to 10 m
- 452 DAS, 18,535 nmi, by 3 Oct.
- 1 Continuing on Line 80

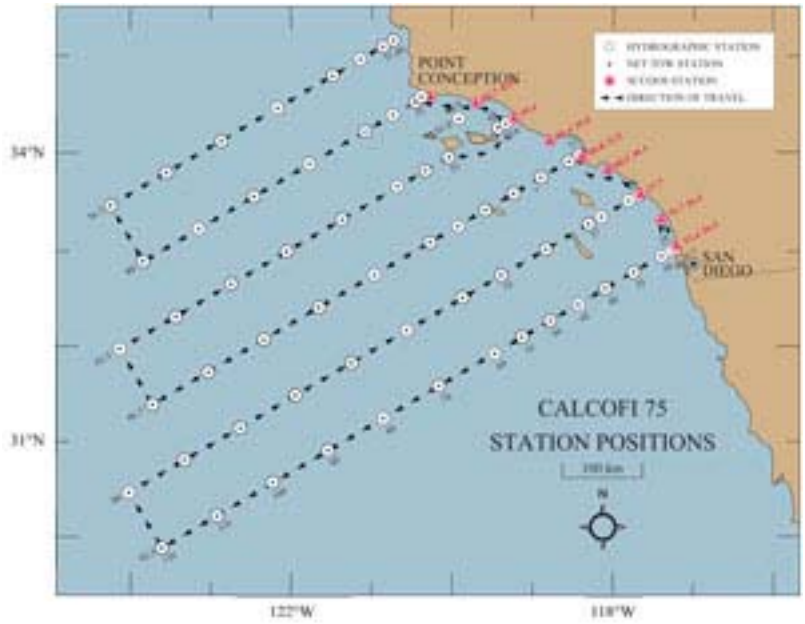
Photo by Chris Hoefer



Future Activities

Surveys - 2019

- 2019 Winter CalCOFI survey: Jan. 7 - Feb. 24 - FSV Reuben Lasker
- 2019 Spring CalCOFI survey: April 1-29 – FSV Reuben Lasker
- 2019 Summer ATM CCES survey: June 13-Sept. 9 (~ 75 days) – FSV Reuben Lasker → CPS Acoustic Trawl Survey with Industry



Data Analyses (March/April 2019)

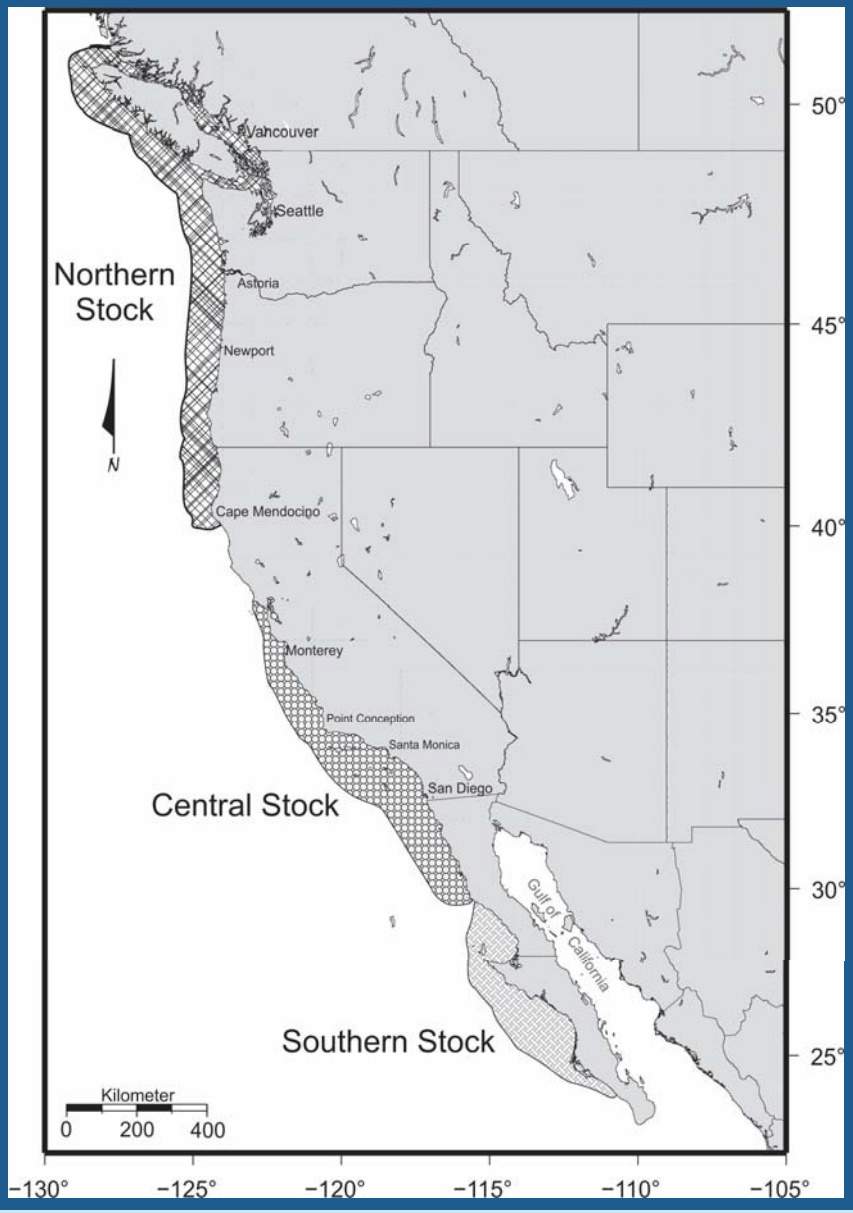
- CPS Biomass Estimates
- Saildrone Report – utility
- Near-shore Biomass Estimates

Northern Anchovy Biomass

➢ 2017 DEPM Objectives

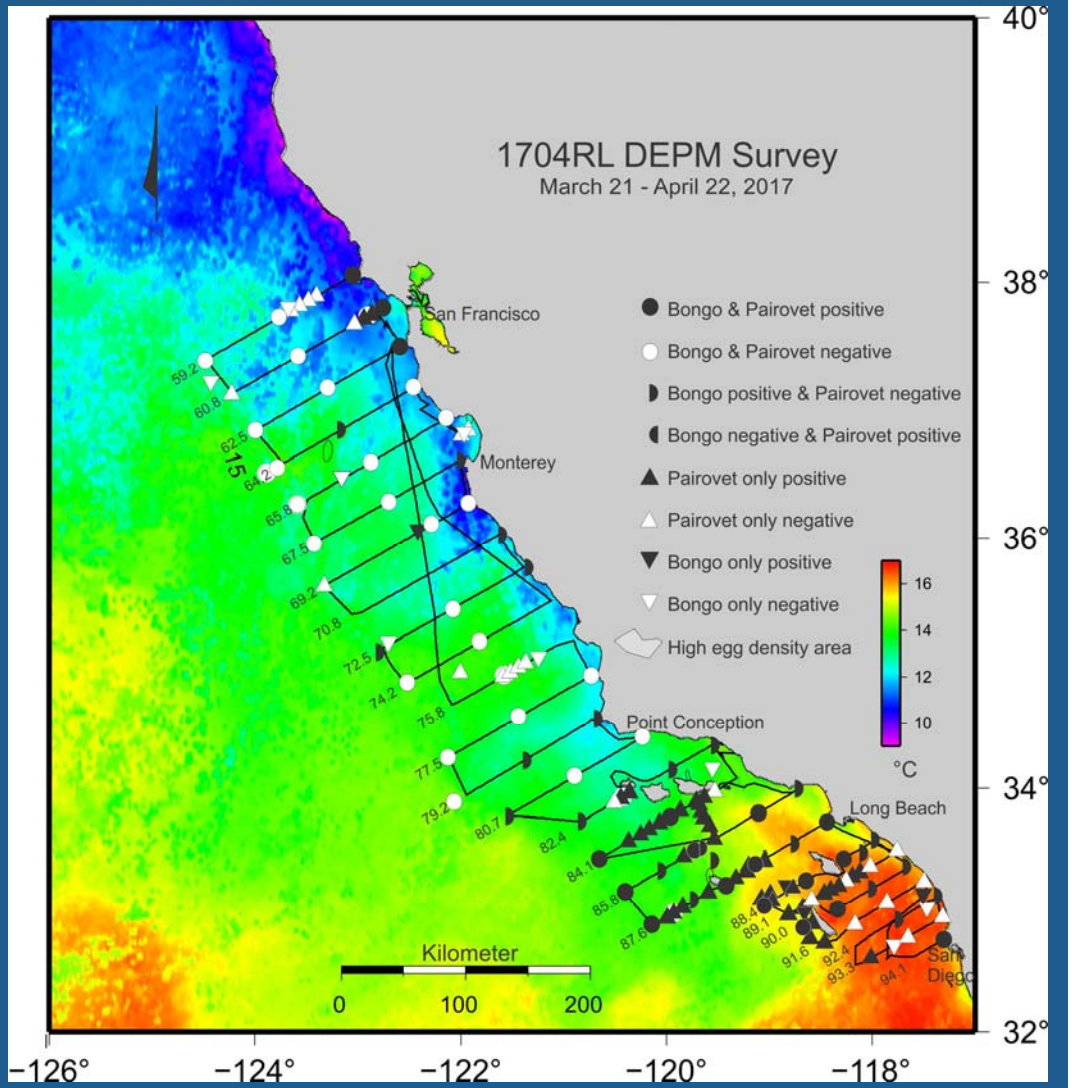
- **Survey the Central Stock of Northern Anchovy (CSNA) from San Diego to north of San Francisco**

- **Estimate egg production and spawning biomass of the CSNA**



2017 DEPM Survey

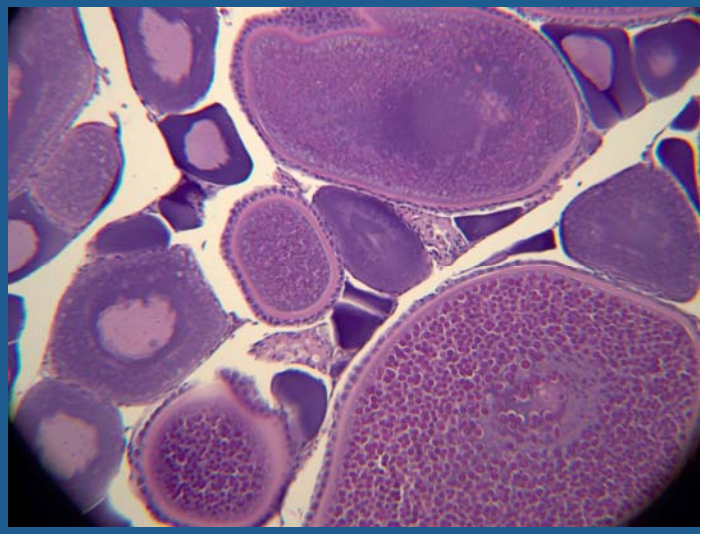
- **Adaptive sampling allocation (Lo et al.2001)**
  - Egg and larval samples were collected using Pairovet and Bongo nets from pre-determined transect lines and stations
  - In addition, Pairovet tows were performed in areas where they were not pre-allocated, when anchovy egg densities from CUFES were higher than 1 egg per minute.



2017 DEPM Survey

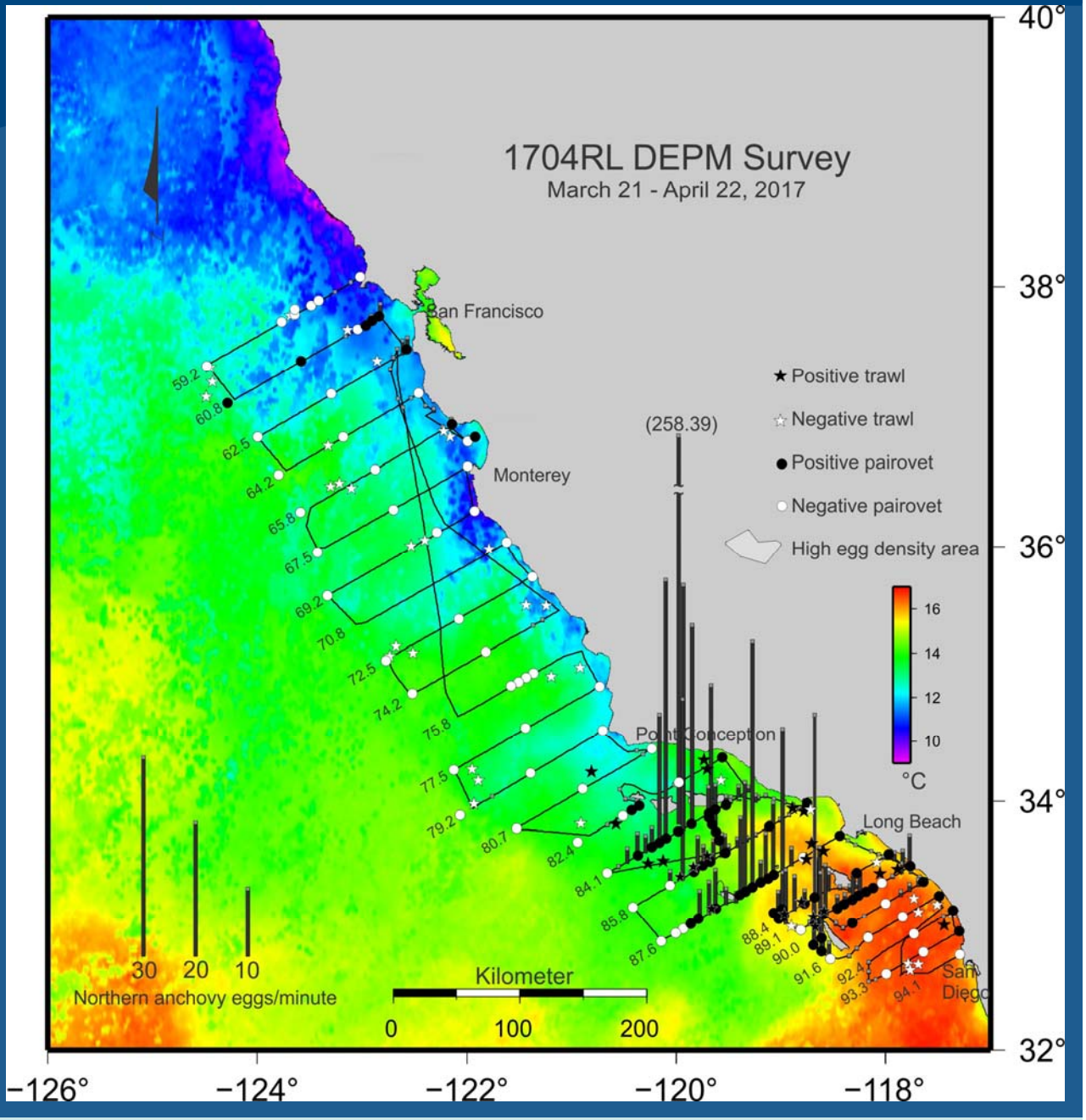
➢ Adult Parameters

- **Fish sampled using a Nordic trawl at the surface**
  - **2-4 trawls conducted per night**
  - **23 of 61 trawls caught anchovies**
  - **256 mature females were used for:**
    - **Maturity determination**
    - **Spawning rate estimation**
    - **Fecundity estimation**



2017 DEPM Survey

- Distribution of Trawls, CUFES, and Pairovet tows



2017 Egg production and Spawning Stock Biomass Estimates

Method	Region	Area (km^2)	$P_0/0.05m^2$ (cv)	Spawning biomass in mt (cv)	Female spawning biomass in mt (cv)
	High Density	20,675	19.30 (0.23)	192,170 (0.32)	105,395 (0.31)
Stratified	Southern California Bight	59,280	-	271,752 (0.43)	152,181 (0.43)
Stratified	Whole Survey	130,816	-	419,21 (0.70)	238,877 (0.69)
Unstratified	Whole Survey	130,816	3.43 (0.24)	308,173 (0.36)	171,689 (0.35)

Time series of spawning biomass

Method	Year	Region	Spawning biomass in mt (cv)
DEPM (SWFSC)	1982	San Francisco, CA - Baja California, Mex	378,000 (0.26)
DEPM (SWFSC)	1983	Moro Bay, CA - Baja California, Mex	652,000 (0.21)
DEPM (SWFSC)	1984	San Fransico, CA - Baja California, Mex	306,000 (0.17)
CalCOFI-Eggs & Larvae (Fissel et al. 2011)	2009	Avila Beach, CA - Baja California, Mex	159,370 (-)
DEPM Light (McCall et al. 2016)	2009-2011	San Francisco, CA - San Diego, CA	15,000 (-)
DEPM (SWFSC)	2017	San Francisco, CA - San Diego, CA	308,173 (0.36)

Future Research Plans

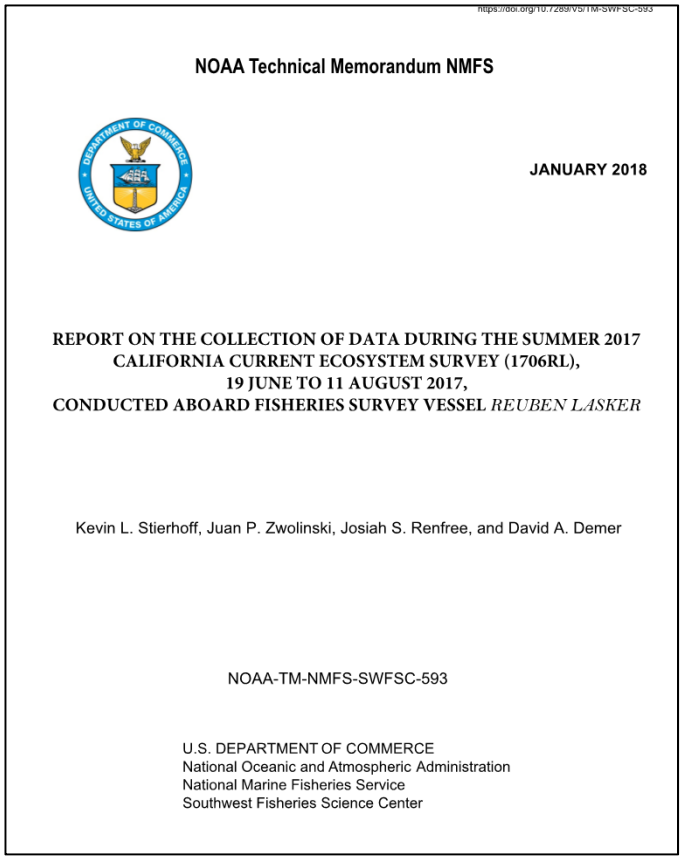
- Continue monitoring the spawning stock biomass and the reproductive biology of the CSNA by conducting periodic DEPM surveys.

- Continue working on improving sampling and statistical methods for estimating egg production and biomass from the DEPM

ATM Review Update

Documentation – 2 Reports Per Survey

1. Operations and Observations Report
   - Survey design, Acoustic & Trawl Sampling, CPS Distribution (No Biomass Estimates)
2. Biological Sampling and Biomass Estimation Report
   - CPS Age/Size Structure
   - CPS Biomass Estimates



https://doi.org/10.7289/V5/TM-SWFSC-593

NOAA Technical Memorandum NMFS

JANUARY 2018

REPORT ON THE COLLECTION OF DATA DURING THE SUMMER 2017 CALIFORNIA CURRENT ECOSYSTEM SURVEY (1706RL), 19 JUNE TO 11 AUGUST 2017, CONDUCTED ABOARD FISHERIES SURVEY VESSEL *REUBEN LASKER*

Kevin L. Stierhoff, Juan P. Zwolinski, Josiah S. Renfree, and David A. Demer

NOAA-TM-NMFS-SWFSC-593

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center

Strive to Complete by Following March/April

CPS Stock Assessment Prioritization

April 2018, the Council tasked the SWFSC and CPSMT with developing prioritization process for CPS stock assessments, similar to the process for groundfish.

- Current practice: Management categories (active, monitored) reflect management need, which inherently influences assessment prioritization.
- National Framework for Prioritization (Methot 2015): Framework is intended to help in synthesizing a broad range of relevant information to more clearly identify which species should be considered for assessments, and the type and frequency of assessment. Useful for prioritizing in FMPs with many stocks (e.g. 60+). Currently used by PFMC and NPFMC for prioritizing groundfish assessments.
- SWFSC and CPSMT Findings:
  - Given only five finfish stocks in the CPS-FMP (three unassessed), national framework is not necessarily an improvement over the process currently in place;
  - Ability to conduct new assessments (e.g. northern anchovy) is still hindered by lack of adequate data, both from the field (inshore component) and in the laboratory (ages).

Should the Council desire to implement the national framework approach for CPS, the SWFSC and CPSMT could take a closer look at the factors, scoring range, and weightings and provide a more in-depth report at a later Council meeting.

CPS Stock Assessment Prioritization

Potential Prioritization Framework

	Factor #	Factor	Determine Annual Priorities	Target Assessment Frequency	Scoring Based On	Scoring Range	PSDN	PMCK	JMCK	CSNA	NSNA	Factor Wtg
Fishery Importance	1	Commercial Fishery Importance	X	X	PacFIN Ex-Vessel Revenues (e.g. 2012-2017)	0 to 5						
	2	Recreational Fishery Importance	X	X	Regional fisheries expert opinion	0 to 5						
	3	Importance to Subsistence	X	X	Regional fisheries expert opinion	0 to 5						
	4	Rebuidling Status	X	X	National stock status database	0 or 1						
	5	Constituent Demand	X	X	Regional fisheries expert opinion	0 to 5						
	6	Non-Catch Value (Omit for CPS???)	X	X	Regional fisheries expert opinion	0 to 5						
Stock Status	7	Relative Stock Abundance	X		Most recent SSB and target/threshold levels, as available from SIS	1 to 5						
	8	Relative Fishing Mortality	X		Most recent SSB and target/threshold levels, as available from SIS	1 to 5						
Ecosystem Importance	9	Key Role in Ecosystem	X	X	Maximum of bottom-up and top-down components; assigned by regional fisheries expert opinion	1 to 5						
Assessment Information	10	Unexpected Changes in Stock Indicators	X		Regional fisheries expert opinion, where indicators are available	0 to 5						
	11	New Type of Information	X		Regional fisheries expert opinion	0 to 5						
	12	Years Assessment Overdue	X		Calculated: year for setting priorities - year of last assessment - target assessment frequency + 1 year	0 to 10						
Target Assessment Frequency	13	Mean Age in Catch		X	Recent average of mean age; direct measurement or assessment estimates	value						
	14	Stock Variability		X	CV for recruitment from assessment estimates	-1 to 1						


Questions