

EXEMPTED FISHING PERMIT 2019 NEARSHORE CPS RESEARCH PROGRAM

SUBMITTED BY CALIFORNIA WETFISH PRODUCERS ASSOCIATION

APRIL 2019

BACKGROUND

- JUNE 2017 MEETING – PFMC CONDITIONALLY APPROVED THE CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW) / CWPA AERIAL SURVEY METHODOLOGY FOR USE IN FUTURE CPS STOCK ASSESSMENTS
- **INTENT OF EFP - CONTINUE TO ADDRESS RECOMMENDATIONS FROM THE METHODS REVIEW TO QUALIFY THE AERIAL SURVEY METHOD FOR USE IN SURVEYING NEARSHORE AREAS NOW MISSED BY OFFSHORE NOAA ACOUSTIC SURVEYS**

PURPOSE AND GOALS

- CURRENT BIOMASS ESTIMATED FOR ANCHOVY AND SARDINE STOCKS IS NEGATIVELY BIASED
 - MUCH OF THESE STOCKS IN SHALLOW NEAR-SHORE WATERS ($< 70\text{M}$) THAT CANNOT BE SURVEYED BY NOAA VESSELS.
- THIS RESEARCH PLAN **CONTINUES TO ADDRESS RECOMMENDATIONS** IDENTIFIED BY THE AERIAL SURVEY METHODS REVIEW PANEL (EXCERPTED FROM THE METHODOLOGY REVIEW REPORT):
 - **1. CONDUCT REPLICATE TRANSECTS AND SURVEYS TO ALLOW ESTIMATION OF VARIANCE FOR DENSITY.**
 - **2. THE PANEL RECOMMENDED THAT ADDITIONAL POINT SET DATA BE COLLECTED**
 - **PANEL WISHED TO ADD N=26 DATA FROM 2010.**
- FURTHER WORK IS NEEDED, **TARGETING LARGER SCHOOLS AND ANCHOVY, AND**
- **EXPANDING THE SURVEY TO CENTRAL COAST ~ MONTEREY-HALF MOON BAY AREA** TO DEVELOP A VARIANCE ESTIMATOR TO MORE FULLY ACCOUNT FOR SOURCES OF UNCERTAINTY

SURVEY ELEMENTS ~ POINT SETS

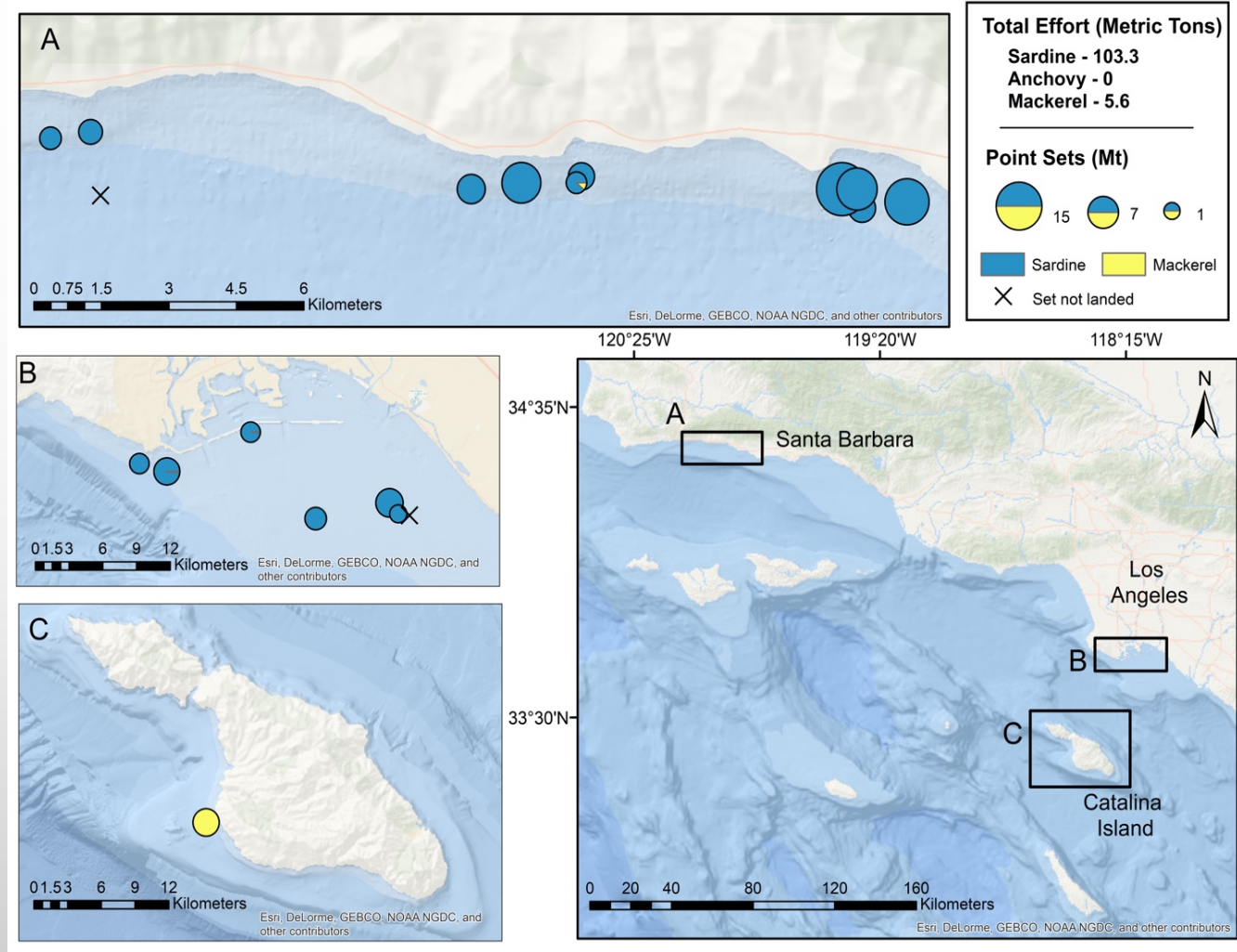
- PILOTS WILL IDENTIFY RANDOM CPS SCHOOLS OF VARIOUS SIZES AND DIRECT VESSELS TO SET ON SCHOOLS
- VESSEL(S) WILL ATTEMPT CAPTURE OF 100% OF TARGET SCHOOLS
 - SCHOOLS WILL BE STORED IN SEPARATE HATCHES
- BIOLOGISTS WILL SAMPLE SCHOOLS FOR BIOLOGICAL CHARACTERISTICS
- PROCESSORS WILL WEIGH INDIVIDUAL SCHOOLS AND SORT EACH SCHOOL FOR SPECIES COMPOSITION
- POINT SETS WILL VALIDATE SPOTTER PILOT ESTIMATES
- **FFP SARDINES NEEDED FOR MIXED SARDINE-ANCHOVY SCHOOLS + LARGER SCHOOLS**
 - HELP VALIDATE OBSERVER SPECIES ID

School Size (mt)	2010 Point Sets	2018 Point Sets	Total Point Sets Collected	2019 Target Schools
0-10	4	12	16	--
10-20	6	4	10	--
20-30	3	0	3	2
30-40	2	0	2	1
40-50	6	0	6	--
50-60	0	0	0	1
60-70	2	0	2	2
70-80	1	0	1	
80-90	2	0	2	
90-100	0	0	0	
100+	0	0	0	1
Total	26	16	42	7

Point sets will be made randomly on various sized CPS schools identified by the spotter pilot. The surface area and tonnage estimate will include all CPS. Sardines as a portion of sets will be recorded and **will not exceed 400 mt.**

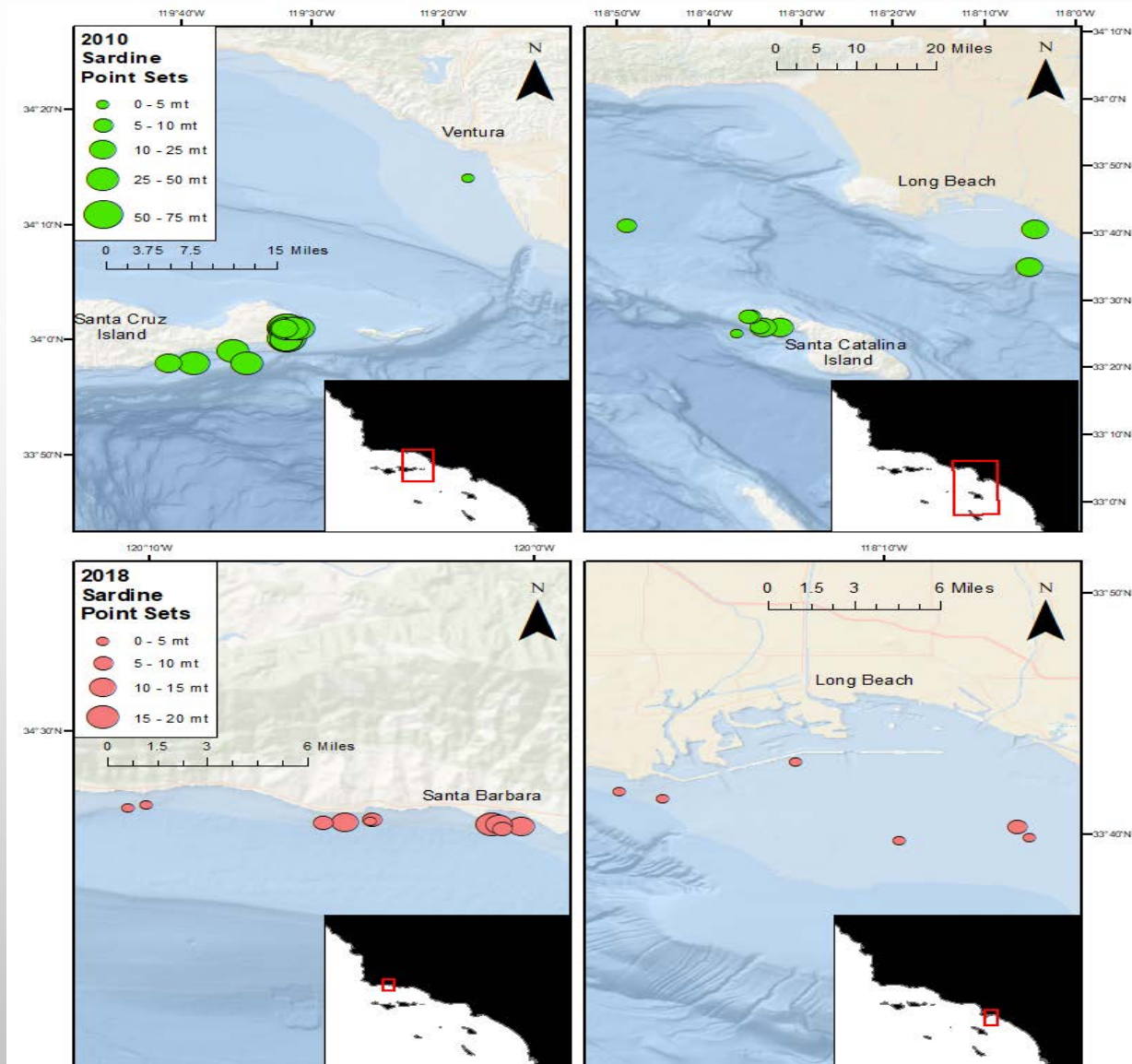
PRELIMINARY RESULTS FROM 2018

- 16 VALID POINT SETS
 - 12 SETS IN 0-10 MT RANGE
 - NORTH = 6 SETS
 - SOUTH = 6 SETS
 - 4 SETS IN 10-20 MT RANGE
 - NORTH = 4 SETS
- 103.31 MT SARDINE LANDED
- 0 MT ANCHOVY
- (ALL IN SURF, PROHIBITED FISHING AREAS OR PINHEAD SIZE)
- 5.59 MT MACKERELS LANDED



SPATIAL DISTRIBUTION AND SCHOOL SIZE OF SARDINE

Figure 1. Spatial distribution and school size of Pacific Sardine collected during the 2010 (green circle) and 2018 (red circles) surveys.



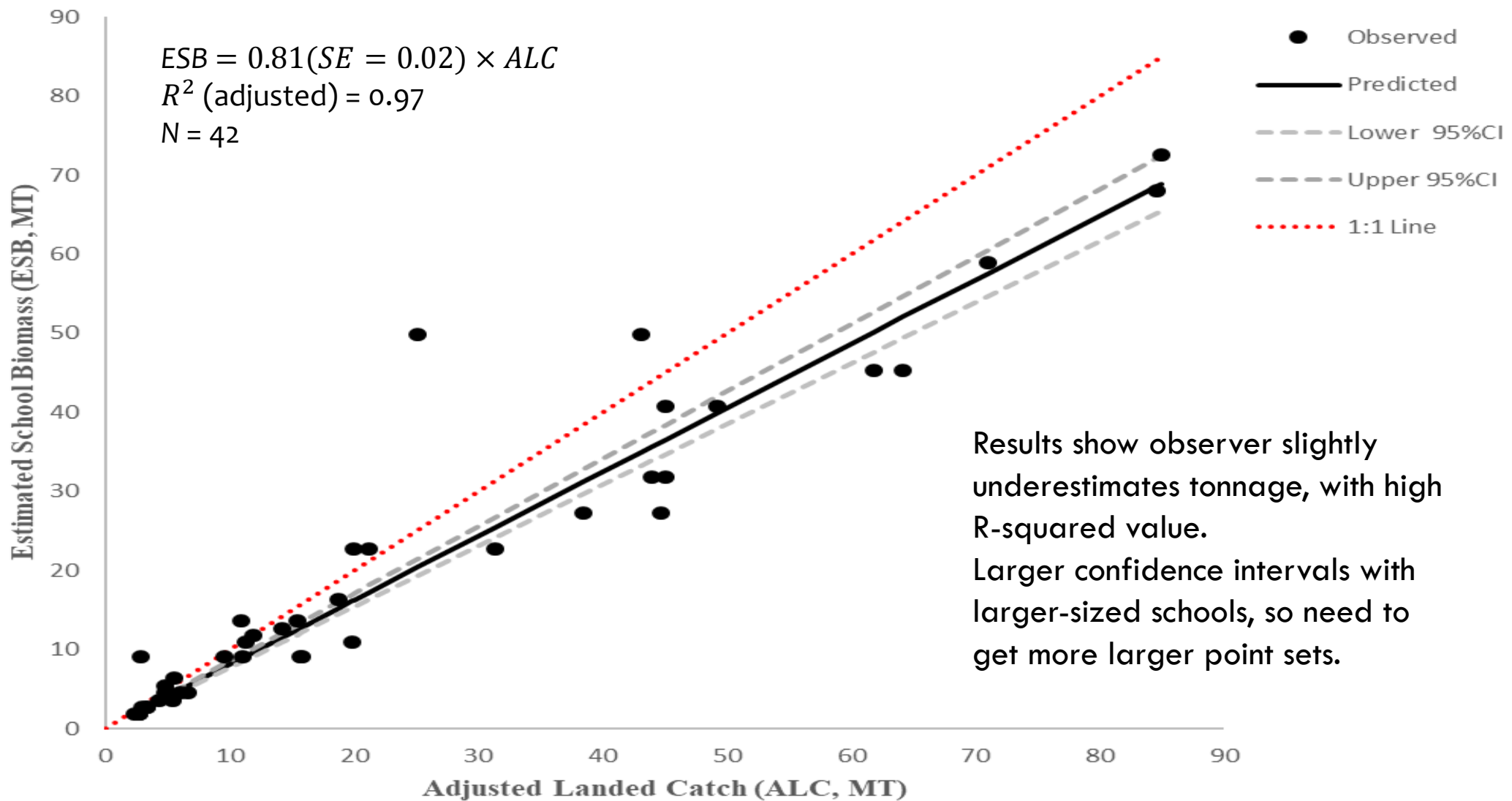
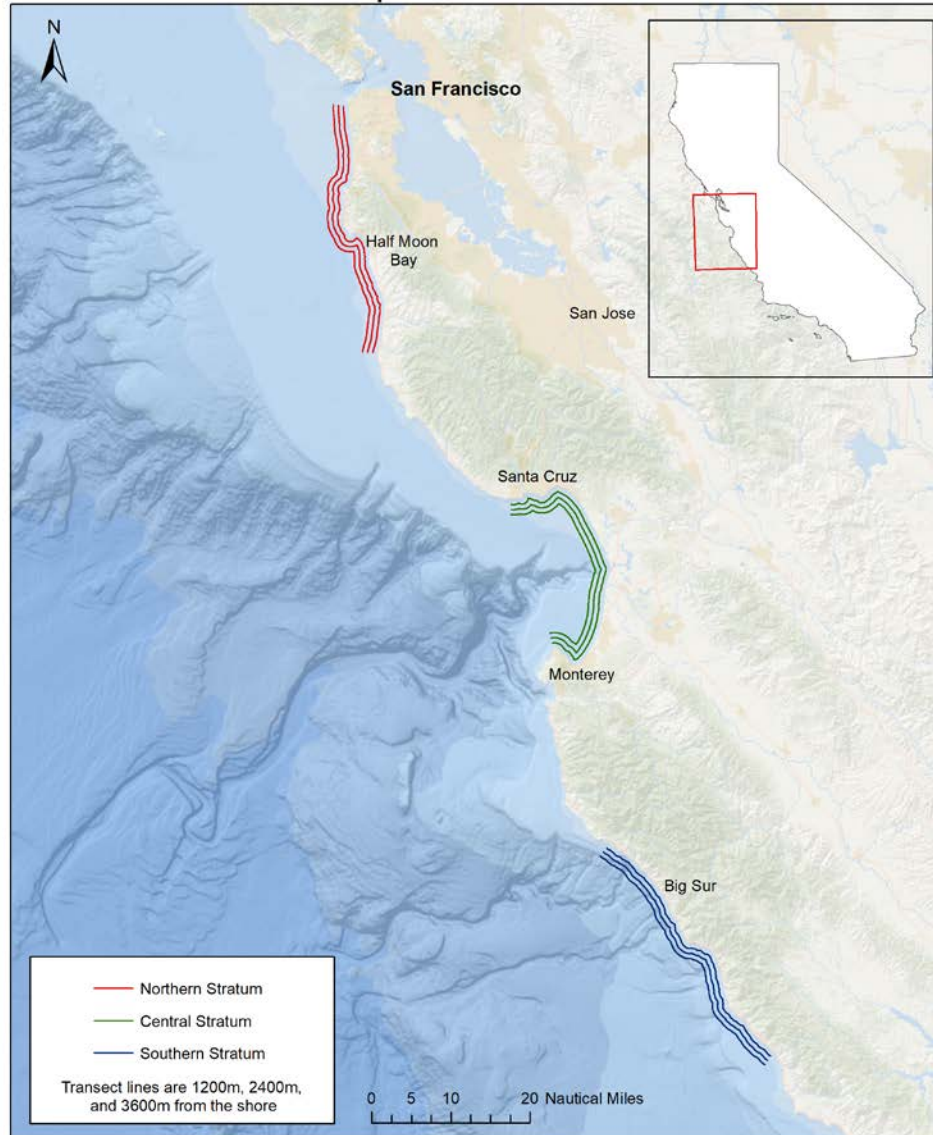


Figure 3. Linear model used to compute the ratio (0.81) of estimated school biomass to adjusted landed catch of captured schools during point set sampling in 2010 and 2018. Percent captured for schools used in the analyses ranged from 90% to 100%. Dotted line represents 1:1 ratio of ESB to ALC.

2019 TRANSECTS

CPS Nearshore Cooperative Survey
2019 Proposed Aerial Transects



- 2 SPOTTER PILOTS (FLYING IN SAME PLANE) WILL FLY REPLICATE TRANSECTS AND MAKE INDEPENDENT ESTIMATES OF SCHOOL SIZE AND SPECIES COMPOSITION.
- EACH STRATUM CONTAINS THREE TRANSECT LINES, EACH LINE FLOWN THREE TIMES

RATIONALE FOR THIS EFP

- **THERE IS A CRITICAL NEED TO SURVEY INSHORE OF CURRENT NOAA CRUISES TO IMPROVE ACCURACY OF CPS STOCK ASSESSMENTS**
- FISHERMEN HAVE OBSERVED ABUNDANCE OF SARDINE NEAR SHORE FOR PAST FEW YEARS, BUT FISHERY IS CLOSED SO EFP IS NEEDED TO ALLOW CAPTURE OF SARDINE IN EVENT SCHOOLS CONTAIN $> 40\%$ SARDINE BY WEIGHT OR ARE PURE SCHOOLS.
- TO SIMPLIFY ACCOUNTING, WE SUGGEST THAT THE COUNCIL FOLLOW THE PROTOCOL ESTABLISHED FOR OTHER EFPS AND DESIGNATE THE **400 MT SARDINE REQUESTED** IN THIS EFP AS A RESEARCH SET ASIDE OFF THE TOP OF THE ACL, SEPARATE FROM THE INCIDENTAL CATCH ALLOWANCE. ANY AMOUNT UNUSED WOULD SIMPLY ROLL BACK INTO THE ACL AT THE CONCLUSION OF THE RESEARCH PERIOD.

SIGNIFICANCE OF THIS EFP

- **THIS RESEARCH IS ESSENTIAL TO DEVELOP USEFUL AND COST-EFFECTIVE SURVEY METHODS TO QUANTIFY THE BIOMASS OF CPS IN THE NEAR-SHORE AREA WHERE LARGE NOAA SHIPS CANNOT TRANSECT.**
- SURVEY METHODS DEVELOPED IN THIS PROJECT CAN BE EXPANDED TO OTHER NEAR-SHORE AREAS COAST-WIDE, WHICH WOULD IMPROVE THE ACCURACY OF FUTURE STOCK ASSESSMENTS.
- COLLABORATION BETWEEN INDUSTRY, THE SCIENTIFIC COMMUNITY, AND FEDERAL AND STATE AGENCIES IS A WIN–WIN FOR ALL
 - FACILITATES INCREASED UNDERSTANDING OF THE UNCERTAINTIES IN QUANTIFYING HIGHLY VARIABLE CPS RESOURCES,
 - UTILIZES FISHERMEN’S KNOWLEDGE OF THE OCEAN AND
 - PROVIDES A PRACTICAL, EFFICIENT METHOD FOR MEASURING FISHERY RESOURCES.

JUSTIFICATION FOR EFP REQUEST

- **EFP REQUESTS 400 MT** BE ALLOCATED AS A RESEARCH SET ASIDE FOR A **MULTI-DAY** RESEARCH PROJECT.
- **IN LIGHT OF RECENT-YEAR OBSERVATIONS OF ABUNDANT SARDINE IN NEAR-SHORE WATERS, THE LIKELIHOOD IS THAT SETS WILL CAPTURE SARDINE, EITHER IN PURE SCHOOLS OR IN MIXED SCHOOLS EXCEEDING 40% INCIDENTAL CATCH OF SARDINE BY WEIGHT.**
 - **WITHOUT AN EFP, SUCH CAPTURES WOULD BE IN VIOLATION.**
- THE ISSUANCE OF AN EFP ALSO ALLOWS THE SALE OF THE FISH TO HELP OFFSET COSTS INCURRED BY PARTICIPATING FISHERMEN AND PROCESSORS.
- **THIS EFP WILL FACILITATE FULFILLING THE GOALS AND OBJECTIVES OF THIS ESSENTIAL RESEARCH AND WILL AVOID WASTING A VALUABLE RESOURCE.**

TIME AND PLACE OF RESEARCH FISHING

- THIS PROJECT WILL TAKE PLACE IN NEAR-SHORE WATERS PROPOSED **EXPANDED TO THE CENTRAL COAST**
 - BUT ALSO MAY COLLECT MORE DATA IN S.CA. DEPENDING ON WEATHER
- TIME FRAME FOR THE SURVEY IS **JULY 1, 2019 – JUNE 30, 2020.**
 - FLEXIBLE TO ACCOUNT FOR WEATHER CONSTRAINTS
- FISHING GEAR USED IS PURSE SEINE NET OF SUITABLE MESH SIZE AND LENGTH FOR CAPTURING CPS SCHOOLS OBSERVED BY AERIAL SPOTTER PILOTS (OR POTENTIALLY BY ACOUSTIC BACKSCATTER).

IN SUMMARY

- **LARGE BIOMASS OF CPS NEAR SHORE IS MISSED IN CURRENT NOAA ACOUSTIC SURVEYS**
 - ESSENTIAL TO SURVEY THIS AREA TO IMPROVE ACCURACY OF STOCK ASSESSMENTS
- **COUNCIL CONDITIONALLY APPROVED USE OF AERIAL SURVEY METHOD AFTER VARIANCE ESTIMATOR IS DEVELOPED TO QUANTIFY UNCERTAINTY IN SPOTTER PILOT OBSERVATIONS**
- **EFP IS NEEDED TO AUTHORIZE TARGETING OF RANDOM SCHOOLS THAT MAY INCLUDE SARDINE**
 - SALE OF FISH ALSO AVOIDS WASTE AND AUGMENTS SURVEY EXPENSES
- THIS SURVEY IS SIGNIFICANT:
 - **FACILITATES INCREASED UNDERSTANDING OF THE UNCERTAINTIES IN QUANTIFYING HIGHLY VARIABLE CPS RESOURCES,**
 - **UTILIZES FISHERMEN'S EXPERTISE AND KNOWLEDGE OF THE OCEAN AND**
 - **PROVIDES A PRACTICAL, EFFICIENT METHOD FOR MEASURING FISHERY RESOURCES.**
- **WE WOULD GREATLY APPRECIATE YOUR SUPPORT!**
- THANK YOU.

QUESTIONS?

