



## CALIFORNIA WETFISH PRODUCERS ASSOCIATION

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Mr. Phil Anderson, Chair, and  
Members of the Pacific Fishery Management Council  
7700 NE Ambassador Place #200  
Portland OR 97220-1384

RE: Agenda Item C.2      APPLICATION FOR EXPERIMENTAL FISHERY PERMIT  
TO ALLOW TAKE OF PACIFIC SARDINE IN 2018 NEARSHORE RESEARCH PROGRAM

- 4a.      Date:              October 9, 2017
- 4b.      Applicant:        California Wetfish Producers Association (CWPA)  
Diane Pleschner-Steele, Executive Director  
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(805) 693-5430

On behalf of CWPA and California's wetfish industry, we would appreciate the Council's consideration of and support for the following EFP request:

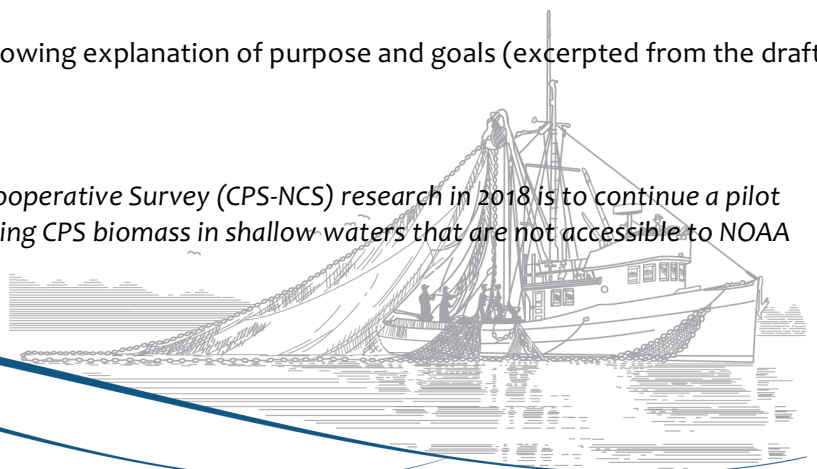
Background: At its June 2017 meeting, the Pacific Fishery Management Council conditionally approved the California Department of Fish and Wildlife (CDFW) / CWPA aerial survey methodology for use in future CPS stock assessments, consistent with recommendations contained in the **Southern California Coastal Pelagic Species Aerial Survey Methodology Review** report (Agenda Item D.2, Attachment 1, June 2017).

This research project intends to sample CPS schools using aerial spotter pilots with plane and aerial camera system to fly aerial surveys near shore and photo-document schools, coupled with qualified purse seine vessels chartered to capture a subset of the schools identified while the pilot photographs the "point sets." The purpose is to address issues identified in the aerial survey methodology review . The survey period is scheduled for late August 2018.

- 4c.      The proposed survey plan provides the following explanation of purpose and goals (excerpted from the draft survey plan):

### **Overview and Justification**

*The goal of the Coastal Pelagic Species Near-shore Cooperative Survey (CPS-NCS) research in 2018 is to continue a pilot study to develop sampling methodology for estimating CPS biomass in shallow waters that are not accessible to NOAA*



ships. Current biomass estimated for anchovy and sardine stocks is believed to be negatively biased, because substantial fractions of these stocks reside in shallow near-shore waters (< 70m) that cannot be surveyed by NOAA vessels. Although the California Department of Fish and Wildlife (CDFW) and the California Wetfish Producers Association (CWPA) have conducted aerial surveys in near-shore waters of the Southern California Bight (SCB) since 2012, and in the Monterey-San Francisco area in summer 2017, it has been difficult to quantify the uncertainty of estimated biomass, due to lack of replication among other issues. Further, there are not adequate data to validate biomass and school composition by species estimated by spotter pilots during the CDFW-CWPA aerial surveys, making it difficult to quantify their bias. We aim to develop methodology for quantifying the level of bias and uncertainty of aerial surveys... [K]nowledge gained from the pilot CPS-NCS survey could be applied to conduct broader sampling surveys, to reduce bias and improve variance estimation when assessing CPS stocks in the future.

This research plan seeks to address recommendations identified by the aerial survey methods review Panel. For example (excerpted from the methodology review report):

- Conduct replicate transects and surveys to allow estimation of variance for density.
- The point set data are limited and hard to collect in Southern California waters, but are a core source of information to validate the survey estimate of biomass. Noting the difficulty for collecting point sets, the Panel nevertheless recommends that additional point set data be collected (or alternative approaches for ground-truthing survey estimates be applied, such as using the volume of schools combined with estimates of packing density).
- Further work is needed to develop a variance estimator to more fully account for the various sources of uncertainty.

For aerial flights, two spotter pilots flying in the same plane will make independent estimates of school size and species composition, and will photograph vessels approaching and wrapping the schools. Survey vessels will also have Go-Pro cameras mounted on their consoles to record school shape and density depicted on their sonar and fathometer during the capture process. Both fishermen and spotter pilots will also record observations on log sheets, and participating processors will record species composition and weight for each set. Examples of photo series and logs are appended to this EFP request.

Attempts will be made to capture entire schools of CPS, to the degree possible, thus adding to the 100% capture point set archive currently used in the CDFW / CWPA near-shore aerial surveys. All schools captured will be stored in separate hatches onboard, and will be weighed individually at the dock and fully sorted for species composition by the participating processors. In addition, biologists onboard the purse seine vessels will pull samples from the beginning, middle and end of each set and preserve fish on ice for later processing to obtain biological characteristics of the sampled fish.

Replicate aerial transects will be flown as part of this project. These replicate transects will allow for an estimation of variance for the number and size of fish schools, and relative density over time. This project also hopes to coordinate with NOAA's offshore acoustic survey for CPS, and possibly evaluate acoustic questions in the near-shore area if sufficient funding is available and the survey periods coincide.

All fish captured, including sardines requested in this EFP application, will be processed and sold by participating processors, and fishermen will be paid for their catches at the usual rates. Aside from the sale of fish captured in this project, processors are not compensated for the extra labor they will incur in weighing and fully sorting each school individually, and documenting species composition by school, rather than the normal procedure of offloading the entire catch and documenting by load. If the point sets are not weighed and not fully sorted by individual set, the point set validation data will be meaningless. The revenue derived from the sale of the fish captured, including EFP fish, will help offset the extra labor, time and other costs that both fishermen and markets will accrue when participating in this research project. Further, sale of the EFP fish provides a beneficial use of the resource and avoids waste.

**4d. Rationale for issuing the EFP:** This EFP application is requesting a total of 500 mt sardine to be potentially landed over seven days during the research period. This equates to an average of approximately 71 tons of sardine per day. Fishermen will be directed to catch schools of CPS of various sizes, using the following matrix as a guide. In light of the probability of continued closure of the directed sardine fishery in 2018, despite the abundance of sardine that fishermen have been observing in near-shore waters for the past few years, this EFP will allow fishermen to retain the entirety of any school they are directed to catch without question, including pure sardines or mixed schools exceeding the allowed 40% incidental catch rate. This EFP will facilitate fulfilling the goals and objectives of this research and will avoid wasting a valuable resource. Absent an EFP, fishermen would be limited in targeting observed schools, or risk a violation if the captured schools contained sardine above the allowed incidental catch limit.

Example of Point Set distribution from  
Fall 2010 Southern California Pilot Sardine Survey Preliminary Sampling Results

Surface Area (m2/set)	mt/set	Number of point sets	Total mt
100	3.8	3	11.4
500	10.6	4	42.4
1000	17	5	85
2000	26.5	6	159
4000	51.9	4	207.6
8000	70.5	3	211.5
10000	82.1	1	82.1
Total		26	799

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 500 mt.

We suggest that, to facilitate and simplify accounting, the Council follow the protocol established for other EFPs and designate the 500 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.

**4e. 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. The 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. In addition, the collaboration between industry, the scientific community, and federal and state agencies mandated to assess and manage fisheries is a win-win for all, facilitating increased understanding of the uncertainties in quantifying highly variable CPS resources, utilizing fishermen's knowledge of the ocean and providing a practical, efficient method for measuring fishery resources.

**4f. Continuation of this EFP:** The longevity of this EFP application is contingent on a number of factors, chief among them sufficient funding to continue and possibly expand the survey, and the status of the sardine fishery in the future. The probability is that this EFP or a similar proposal will be needed in future years until survey methods and stock assessments fully account for the abundance of sardine and the fishery is reopened with sufficient harvest opportunity that would allow for a yearlong fishery.

**4g. Participating vessels:** CWPA has identified 4 vessels that meet the criteria for this research project:

<b>Vessel Name</b>	<b>Skipper</b>	<b>Owner</b>	<b>USCG #</b>	<b>CPS Permit #</b>
Eileen	Nick Jurlin	South Sound Fisheries Inc.	D252749	38
Provider	Jamie Ashley Richie Ashley	Provider LLC	D572344	1
Cape Blanco	Corbin Hanson	Tri-Marine Fish Co.	648720	53
Triton	Pete Ciaramitaro	Triton Fishing Inc.	CF7218UH	14

**Participating processors:** Two wetfish processors have been identified – each processor normally offloads two of the participating vessels

Tri-Marine Fish Company, 220 Cannery Street, San Pedro, CA 90731  
(offloads FV Eileen, FV Cape Blanco Contact: Vince Torre)  
South Coast Trading Company, 2148 West 16th Street, Long Beach CA 90813  
(offloads FV Provider, FV Triton Contact: Lillo Augello)

**4h. Description of species harvested:** Under this project, purse seine vessels will be directed to capture schools of CPS observed by aerial spotter pilot (or potentially, backscatter observed by acoustic trawl). The schools could contain sardine, anchovy, Pacific or jack mackerel, or other coastal pelagic species. An EFP is necessary because the directed sardine fishery is closed, and may remain closed in 2018. There are no constraints on capturing the other CPS species other than Annual Catch Limits, which this project will not exceed. No measurable impacts to non-target species are anticipated.

**4i. Justification for EFP request:** This EFP application requests 500 mt be allocated as a research set aside for a seven-day research project, which amounts to about 71 mt per day. Vessels will be directed to capture several schools in a given day, and will strive for 100 percent capture of individual schools. 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 additional costs incurred by participating fishermen and processors. Please also see the distribution matrix and information provided under Item 2d.

**4j. Accounting for EFP fish:** Biologists will accompany the vessels during purse seine captures to sample individual sets, and will take a subset of each set for later processing to obtain biological characteristics of individual fish. As noted above, all schools captured will be stowed in individual hatches in the hold, and when delivered to market each set will be weighed and fully sorted for species composition. Processors will maintain records of the weight of individual species groups, including sardine, to validate species composition. CWPA will also maintain a record of the volume / total weight of each species captured and will monitor progress toward attaining the EFP limit. These weights and species composition per set will also be included in the final report.

**4k. Data Collection Methods:** According to the survey plan:

*Biological sampling*

The catch taken from each school will be subsampled on the boat throughout the pumping of each haul. ... biologists will subsample the fish at the beginning, middle, and end of pumping each set aboard the vessel, using Monorail nets (16" x 16" frame and 12" bag depth) or any similar sampling nets. The three collected fish subsamples will be mixed in a basket, stored in plastic bags and preserved on ice or frozen until landing. All collected fish samples will be delivered to a CDFW biologist upon landing of the daily catches. At the CDFW laboratories these samples will be sorted by species and measured for biological characteristics (length, weight, sex, maturity etc.). For each species and each school, the catch will be additionally subsampled to obtain up to 50 otoliths for ageing.

*Statistical analyses*

Based on the objectives of this pilot research, CPS biomass and associated variances will be estimated from data collected during the aerial and purse seine survey. The sampling unit of the survey will be one transect flown for a number of hours during the day... Further, purse seine data will be used to validate aerial tonnage estimates, school species composition, and [to obtain] length, and age composition ..., providing additional information to quantify uncertainty surrounding biomass estimated by the pilot and observer. More details regarding the process of biomass estimation from the CPS-NCS will be provided in a separate document.

Scientific data collection and analysis will be supervised by CDFW and CWPA scientists, who will collaborate on procedures to ensure and evaluate data quality during the survey, and data analysis methodology through completion of the project. Weather permitting, we will strive to have multiple replications of each transect, as well as purse seine sets on a random sample of schools of various sizes, to derive unbiased estimates of biomass and associated variances.

**4l. Vessel selection:** Criteria were established to qualify vessels for participation in this research project. From those requirements CWPA identified four vessels meeting the criteria for vessel size, equipment and skippers' experience, whose skippers, importantly, committed to participate in this research, notwithstanding any other fishing opportunities during the project period.

**4m. Time and Place of Research Fishing:** This project will take place in near-shore waters of the Southern California Bight. The tentative time frame for the survey is late August 2018. If timing and sufficient funding permit, this project will also coordinate with the 2018 NOAA summer survey, if the RV Reuben Lasker is surveying outer waters on schedule. 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).

Thank you for your consideration.

Best regards,



Diane Pleschner-Steele  
Executive Director

**Attachments:**

Fishermen's Log Form  
Flight Log Form  
2010 Point Set Photographs

## 2018 CPS Nearshore Cooperative Survey

### *Fisherman's Log Form*

Date: \_\_\_\_\_ Captain: \_\_\_\_\_

Vessel: \_\_\_\_\_ Processor: \_\_\_\_\_

#### Hydroacoustic Gear

Type	Manufact.	Model	Frequency
Sounder			
Sonar			

#### Net Dimensions

Net Length (fath)	Net Depth (fath)	Mesh Size

#### School and Ocean Data

Point Set No.	Time	Latitude	Longitude	Depth to Top of School (fath)	Depth to Bottom of School (fath)	Ocean Depth (fath)	Temp.	Weather Condition

#### Captains Estimate and Delivery Information

#### Office Use Only

Point Set No.	Species Observed	% of school captured	Total Est. School Tonnage (mt)	Fish Hold (FP, FS, MP, MS, AP, AS)	Sampled By Biologist on Board (Y/N)	Other Vessel utilized: Name, est. weight, fish hold	*Delivered Weight (mt)	*Fish Ticket Number

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Weather Codes: 1= calm, clear; 2= light wind, good visibility; 3= moderate wind, fair visibility; 4= poor fishing conditions.

## 2018 CPS Nearshore Cooperative Survey

### *Flight Log Form*

**Date:** \_\_\_\_\_ **Pilot:** \_\_\_\_\_ **Plane:** \_\_\_\_\_

**Processor:** \_\_\_\_\_ **Observer:** \_\_\_\_\_

Set #	Time	Photo #	Position (Lat/Long)	Altitude (ft)	Vessel	Species Observed	% of School Captured	Est. school Tonnage (mt)	% Species Composition

Comments: \_\_\_\_\_

Set #	Time	Photo #	Position (Lat/Long)	Altitude (ft)	Vessel	Species Observed	% of School Captured	Est. school Tonnage (mt)	% Species Composition

Comments: \_\_\_\_\_

Set #	Time	Photo #	Position (Lat/Long)	Altitude (ft)	Vessel	Species Observed	% of School Captured	Est. school Tonnage (mt)	% Species Composition

Comments: \_\_\_\_\_

Set #	Time	Photo #	Position (Lat/Long)	Altitude (ft)	Vessel	Species Observed	% of School Captured	Est. school Tonnage (mt)	% Species Composition

Comments: \_\_\_\_\_

Set #	Time	Photo #	Position (Lat/Long)	Altitude (ft)	Vessel	Species Observed	% of School Captured	Est. school Tonnage (mt)	% Species Composition

Comments: \_\_\_\_\_

Set #	Time	Photo #	Position (Lat/Long)	Altitude (ft)	Vessel	Species Observed	% of School Captured	Est. school Tonnage (mt)	% Species Composition

Comments: \_\_\_\_\_

## 2010 POINT SET PHOTOS

Top photo: FV Eileen approaches 20-ton sardine school in 2010 summer aerial survey.

Bottom photo: FV Eileen in process of wrapping school. This was a 100% capture point set.

Note the typical schooling pattern of CPS in near-shore waters in CA. Individual schools break away from the shoaling fish for a short period, and often outrun the vessel in the capture attempt.

