



CALIFORNIA WETFISH PRODUCERS ASSOCIATION

Representing California's Historic Fishery

VISIT WWW.CALIFORNIAWETFISH.ORG FOR INFORMATION

March 4, 2010

Mr. Dave Ortmann, Chair &
Dr. Don Mclsaac, Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place #200
Portland OR 97220-1384

RE: Agenda Item H.3.c: Supplemental information pertaining to Fall Sardine Pilot Project proposed in Experimental Fishing Permit (EFP) for Pacific coast Sardine Research in 2010

Dear Chairman Ortmann, Dr. Mclsaac and Council members,

The California Wetfish Producers Association (CWPA) represents the majority of active wetfish fishermen and processors from both Monterey and southern California. We very much appreciate this opportunity to provide supplemental information re: the fall sardine pilot project proposed in the 2010 EFP application.

As noted in our earlier letter, industry and participating scientists request a small portion of this EFP, not to exceed 800 mt, be designated to permit scientists to investigate, compare and further improve survey methodology by evaluating the use of lidar, acoustics, and night-time bioluminescence photography in addition to the daylight photography methods used in the summer survey to estimate sardine abundance.

The proposed fall pilot study allows identified vessels to catch Pacific sardine, both day and/or night as directed by the principal investigator, during October-November 2010, a time when sardines are in peak abundance in California but the directed fishery is now closed. The goal is to develop and refine survey methodology for review by a sardine STAR panel in 2011, for potential inclusion in future sardine stock assessments to improve measurements of sardine; techniques developed could also be employed to assess other CPS.

Again, we appreciate the Council's interest in this research and urge you to approve the Pacific coast sardine EFP application, including the 800 mt allocated for a pilot project in southern CA in October-November timed to coordinate with the fall CalCOFI cruise, for the purpose of evaluating methods to improve biomass estimates.

Thank you for your consideration.

Best regards,

A handwritten signature in cursive script that reads "Diane Pleschner-Steele".

Diane Pleschner-Steele
Executive Director

Fall Southern California Pilot Sardine Survey

Additional justification and potential
benefits of this survey

STAR Panel Recommendations Addressed by Fall Survey:

- determine proportion of sardine schools visible from aircraft: consider acoustics
- consider possible use of acoustics to calculate density associated with schools too large to be sampled using point sets
- quantify impact of “edge effects” on photographs, including effect of calculating school weight
- calibrate scheme to estimate surface area from photographs

Addressed STAR Recommendations (continued)

- refine approach to identify sardine schools
- examine trade-offs associated with altitude between area surveyed and ability to fly transects (weather dependency)
- estimate variation in perceived size of sardine schools using multiple photographs of same schools

Aerial Photography

- Advantages: speed, cost, accuracy
- Disadvantages: subject to weather, detection of schools deeper in water column, positive fish identification

Ship-board Acoustics

- Advantages: survey during most weather and fog conditions, survey remote areas, accuracy of results, many survey results available from other fisheries for comparison
- Disadvantages: cost and availability of ship time, relative slow speed of ships, number of personnel, school vessel avoidance/scattering, positive fish identification
- Churnside et. al. (2003) found correlation of 0.994 for echosounder and lidar fish school reflective measurements thus very similar results

Lidar

- Advantages: speed, comparative cost (airplane vs ship), accuracy of results, no fish school scattering/avoidance, tolerates higher surface disturbance (wind), detection of schools deeper in water column
- Disadvantages: dependent on good flying weather, positive fish identification

Planned Use of Photography, Acoustics, & Lidar Survey Techniques

- Obtain locations of likely sardine school targets from CalCOFI ship and from aerial survey; direct spotter pilot and research vessels to those areas for point sets
- Estimate school tonnage for photographed schools to get relative school density, especially for schools too large to capture with purse seine
- Compare return signals of acoustics and lidar to photos to determine school species identification and obtain ratio of fish schools by species

Fall survey justification and potential benefits

- Fish already designated for harvest, survey enhances use of harvested fish to better estimate abundance for improved management
- 100% biological sampling compared to small fraction during fishery, thus improved accuracy
- Explore day-night difference in sardine presence/detection by each survey technique
- Increased information on density of schools by measured surface area from both photo & lidar

Justification and Benefits:
(continued)

- Expanding photo catalog of identified schools
- Improved detection of schools deeper in water column with lidar - Churnside et. al. (submitted for publication)
- Enhanced measurements of school thickness in center and at edges with lidar and acoustics
- Compare photography of bioluminescence vs lidar & acoustic school detection and measurements for day-night differences

Justification and Benefits:
(conclusion)

- Finally, test findings of Churnside et. al. (submitted for publication) that the performance of photographic techniques coupled with lidar reduces uncertainties of using either technique alone even in turbid waters of Chesapeake Bay

Effective Use of Lidar

- Sardines and anchovies in California waters (Lo et al., 2000)
- Capelin and herring in the north Pacific (Brown et al., 2002)
- Mullet off the west coast of Florida (Churnside et al., 2003), and anchovy, sardine, and juvenile
- Mackerel in the coastal Atlantic waters of southern Europe (Carrera et al., 2006)
- Anchovy, sardine, and juvenile mackerel in the coastal Atlantic waters of southern Europe (Carrera et al., 2006)
- Cost-per-km estimates 10% or less of ship-based surveys (Brown et al., 2002; Churnside et al., 1997)
- Speed, no avoidance (Churnside et al., 1997, Churnside et al., 2003).