

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON
EXEMPTED FISHING PERMIT (EFP) FOR SARDINE RESEARCH

The Scientific and Statistical Committee (SSC) reviewed two Exempted Fishing Permit (EFP) applications submitted for 2009 research on aerial surveys for estimation of sardine biomass. At issue is the allocation of 1200 MT of sardine for research. The SSC heard presentations by representatives of each of the EFP applicants: Tom Jagielo of the Northwest Sardine Survey, who presented results of a pilot study from 2008, and Diane Pleschner-Steele of California Wetfish Producer's Association, who presented plans for surveys in California.

The Northwest Sardine Survey has made methodological progress through their pilot study and is planning additional data collection to relate aerial survey photos to school biomass. This is essential if a broad-scale aerial survey is to be used to estimate total stock biomass or to develop an index of abundance for use in stock assessment. Both EFP applicants agree to work together on aerial transect and photo methodology to assure that data are compatible for analysis.

We support an aerial survey from Cape Flattery to Monterey Bay using standardized sampling to determine school distribution and abundance. However, the SSC notes that this does not cover the entire range of the stock. The surveys in the north and south portions of this range should be synchronous to avoid potential biases due to school migration. The study plan should clarify how the researchers will confirm that schools identified by pilots are sardine, as opposed to anchovy or other schooling fish. The visual characteristics of non-sardine schools should be identified to assure proper exclusion during analysis of the aerial transect data. The estimated biomass of confirmed sardine schools then needs to be determined through point set sampling. The preliminary data suggest that biomass is variable among schools of similar surface area; this variability needs to be characterized for schools of different sizes in different geographic regions. Variable environmental conditions, depth of schools, fish density within schools and capture techniques may lead to differences in the predicted relationship between school surface area and biomass. A review of historical sardine aerial surveys may provide information on fish behavior and day-night differences. The SSC recommends that the point set sampling for the 2009 EFP be allocated to cover the spatial extent of the study area and sample schools of different sizes.

It will take some time to fully develop survey methods to generate rigorous, reliable data for use in stock assessment. Given the set-aside for 2009 and the biomass of medium to large-sized schools (50+ MT each), it is unlikely that all of these issues can be addressed this year. Mr.

Jagiello will have an initial power analysis complete for the May STAR Panel meeting for a discussion of appropriate sample sizes to characterize variability. A full survey design will be needed three weeks in advance of this meeting. A full survey report, and diagnostics of sources of uncertainty will be needed for the STAR Panel review in September. The SSC will ultimately need to assess the utility of the aerial survey approach for stock assessment.

Both groups of researchers should continue to work together on standardized methods to assure that their results can be combined for evaluation. The SSC commends the applicants for their cooperation and industry collaboration in this important research.

PFMC
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