SUPPORTING STATEMENT
U.S. Department of Commerce
National Oceanic & Atmospheric Administration
West Coast Swordfish Fishery Cost and Earnings Survey
OMB Control No. 0648-0751

B.   COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

The survey population includes fishing vessel owner/operators, processors, and aircraft owner/operators that participated in the commercial West Coast Drift Gillnet (DGN) and Harpoon (HPN) fishery during the 2018-19 and 2019-20 seasons, plus recent swordfish fishery participants who are currently inactive. In the 2017-18 season, 55 swordfish permits were issued and approximately 18 DGN and 21 HPN vessels actually fished. In the 2018-19 season, 56 swordfish permits were issued and approximately 21 DGN and 14 HPN vessels fished. In addition, a small number of fishermen made deep-set buoy gear or longline landings to the West Coast in recent years. The current survey will target the active DGN, HPN, longline, and deep set buoy gear vessels for 2018-19 and 2019-20. We will also attempt to contact any previous permittees who had DGN or HPN permits during the 2011 survey but are no longer participating in the fishery. We estimate a total of 26 operator/owners. Based on the 2004 and 2011 surveys (see below), a 50% response rate is expected for the cost and earnings survey which would yield approximately 13 completed vessel surveys out of 26. We further expect a 100% response rate from 2 fish spotters and 2 processors on an annualized basis, assuming the survey is conducted once every three years. The completed responses for vessels will be stratified by vessel size, landings by weight, fishing method and port of registration. We anticipate an overall response rate of 57%.

The Southwest Fisheries Science Center (SWFSC) has conducted three previous economic cost earnings surveys of the fleet, under OMB Control No. 0648-0369. A survey fielded during 1999 obtained a 43% response rate. A second survey fielded during 2004 obtained responses from 54% of vessel owner/operators and the third survey conducted in 2010 obtained responses from 36% of DGN and HPN vessel owner/operators.

The targeted survey fielding protocol for this survey would suggest a slightly higher response rate than the last survey. Factors that will generate a higher response rate include very close collaboration with industry leaders to ensure their on-going support, attendance at industry events where surveys can be administered in person, and a survey method that includes phone and email follow-up to schedule personal interviews to administer the survey.

Total Target Population: DGN + HPN + Other	30
Approximate expected survey response rate	57%
Approximate expected # of survey respondents	17
Average burden hours per survey	1 hour
Total annual burden hours	17 hours

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

This will be a census survey. The desired degree of precision, and corresponding desired response rate, depends upon the application for which the data is being used. Some applications may use data from all survey respondents, while other applications will use data only from vessels that hold a specific gear type or operate in a certain geographic location. A basic application of the survey data could be the inference of unobserved population mean values from the observed sample mean values. Given a population of approximately 26 vessels and an expected response rate of approximately 50%, a sample of 13 completed surveys would be anticipated.

For an example of anticipated precision of estimates, we consider the case of average variable costs. Results from the 2011 DGN-HPN fishery survey showed a coefficient of variation for reported category: variable costs of $CV_X = \frac{s}{\overline{X}} = 1.06$ *for HPN vessels*, $\wedge \dot{\iota} 0.3$ for DGN vessels where X denotes respondent-level variable costs, s is the sample standard deviation and $\overline{X}$ is the sample mean. The formula for the coefficient of variation of mean variable costs estimated from survey results is: $CV_{\overline{X}} = \frac{s_{\overline{X}}}{\overline{\overline{X}}} \sqrt{\frac{N-n}{N-1}} = CV_X \sqrt{\frac{N-n}{n(N-1)}}$, where

the standard error for the sample mean is $s_{\overline{X}} = \frac{s}{\sqrt{n}}$, N is the survey target population size, and n is the survey sample size. The associated margin of error for a 95% confidence interval for the mean variable cost is +/-$1.96 \, CV_X \sqrt{\frac{N-n}{n(N-1)}}$, where 1.96 is the 97.5[th] percentile of a standard normal random variable. With target population sizes of 40 and 20 survey respondents for each kind of vessel[1] (HPN or DGN), estimated mean variable costs would thus achieve an approximate margin of error of +/- 33% *for HPN vessels* and +/- 13% for DGN vessels with 95% confidence.

The example above is one of many potential examples for the various sample data categories, and the CVs will vary for different sample statistics and may not be the same for this new survey as for the previous one. It is likely that different levels of precision will be obtained for other

[1] This example assumes data collection will occur once every three years from target populations of these sizes.

statistics calculated from survey results.

This is a survey specifically designed to reduce the burden to the respondents.

3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

A number of methods will be used to maximize survey response rates: First, the survey team will work with industry group representatives to encourage survey participation. Second, respondents are asked to provide only information necessary to perform intended analysis and questions are structured in the most logical fashion to prevent repetition or unnecessary detail. Third, the interview form has been tested and will be implemented based on methods found most effective in those tests. Those methods include: taking advantage of opportunities to test interviews in person at industry events (such as NMFS captain orientation meetings); following up with non-respondents to conduct surveys by phone or email; and Dr. Hanan leveraging close relationships, personal and professional, with industry leaders and individual fishermen forged over 30 years working with the fleet. Fourth, different versions of the survey instrument will be prepared to tailor the survey to different groups of participants, thereby reducing the form to the minimum length necessary to collect the requested information.

Testing for non-response bias will be based on considerable data available for all members of the survey population. Data on vessel physical characteristics and landings are available for both survey respondents and non-respondents from the federal logbooks, and will be used to test the representativeness of survey respondents. No personally identifiable information will be provided to NMFS; the fishermen are aware of this and trust Dr. Hanan to follow through with this stipulation as he has done in previous surveys.

If non-response bias appears evident in our survey results, efforts will be made to contact groups that are under-represented to achieve a balance among different groups (different vessel sizes, fishing methods and levels of participation). If non-response bias still appears evident in our survey responses after such an effort, weighted averages and weighted sums based on the distribution of groups will be used to adjust the bias.

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.

The survey has been reviewed and edited extensively by representatives of NMFS/SWFSC with extensive experience in administering surveys in the West Coast commercial fishing industry.

DGN-HPN industry leaders provided a review of the survey and the survey was also pretested by commercial swordfish participants. Testing included nine (9) individuals, which therefore did not require prior approval from OMB.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other

person(s) who will actually collect and/or analyze the information for the agency.

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