SUPPORTING STATEMENT
LARGE PELAGICS FISHING SURVEY
OMB CONTROL NO. 0648-0380

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 LPS utilizes a "complemented surveys" approach, which includes both a telephone survey of permit holders to estimate fishing effort and an intercept survey of anglers and captains at fishing sites to obtain catch data and biological data. This approach was developed and tested over a period of several years to minimize response and sampling errors for the different data elements. The survey is administered each year from June-October.

Large Pelagic Telephone Survey (LPTS)

The LPTS is a bi-weekly, cross-sectional telephone survey designed to estimate the total number of fishing trips that target large pelagic species, such as tunas, billfish and sharks. The sample universe for the survey includes all vessels (with associated vessel owners/permit holders) federally permitted to fish for highly migratory species (HMS). Sampling is stratified by state or geographic region (group of states). For each bi-weekly reference period, a representative sample is selected for each stratum from the permit frame. Table 1 provides the sample universe and the weekly and annual target sample size for each stratum. In the most recent year (2016), the LPTS achieved a response rate of 66%.

Table 1. LPTS estimated sample universe, total sample and estimated number of completed interviews.

State	Estimated Vessels	Bi-Weekly Sample	Annual Sample	Estimated Completed Interviews
NH/ME	1,578	129	1,160	759
MA	4,167	300	3,305	2,199
CT/RI	1,549	165	1,810	1,213
NY	2,371	180	1,980	1,301
NJ	3,560	254	2,799	1,787
DE/ME	2,288	167	1,836	1,254
VA	1,211	127	1,214	846
NC	1,967	200	2,195	1427
SC/GA	640	65	714	464
FL	4,259	432	4754	3090

AL/MS	706	72	788	512
LA	718	73	802	521
TX	726	74	811	527
Total	**25,740**		**24,168**	**15,900**

Large Pelagic Intercept Survey (LPIS)

The LPIS is a monthly survey of completed fishing trips designed to estimate catch rates (catch per trip) by species for fishing trips that target large pelagic species. As with the LPTS, monthly sampling is stratified by state or region. Within state, sampling is further stratified by kind of day (weekend or weekday). The sample universe for the LPIS is the estimated 575,000 fishing trips targeting large pelagic species. From this universe, we sample approximately 7,870 completed fishing trips each year. Table 2 provides the estimated sample universe and annual target sample size for each state. In 2016, the LPIS achieved a response rate of nearly 96% (approximately 1% of intercepted anglers refused to participate in the survey 3% were missed due to ongoing interviews).

As in previous years, sampling for the LPIS will be conducted using a three-stage cluster sampling design where a specific day and geographic area for returning boats will be randomly selected in the first stage, a cluster of fishing trips returning to that area on that day will be selected in the second stage, and a subset of those trips will be sampled in the third stage. Each interviewing site, or site cluster, shall be categorized according to its total expectation of eligible interviews and assigned a weight based on that categorization. The relative weight of each site or site cluster will determine its probability of selection in the random draw conducted as the first stage of LPIS sampling. This probability-proportional-to-size (PPS) approach assures a relatively high level of interviewing productivity because the “high expectation” sites, or site clusters, will be selected for interviewing more frequently than the “low expectation” sites.
Table 2. LPIS estimated sample universe and the targeted number of completed interviews.

State	**Estimated Trips**	**Annual Sample**
NH/ME	5,338	235
MA	15,965	615
CT/RI	3,955	220
NY	8,527	510
NJ	10,690	610
DE/ME	7,112	855
VA	3,021	435
NC	52,249	650
SC/GA	15,332	440
FL	400,379	1,820
AL/MS	29,798	480
LA	10,542	480
TX	12,500	520

Total	575,408	7,870

Large Pelagic Biological Survey (LPBS)

The LPBS collects additional length, weight and other biological information for key management species. The design of the survey is very similar to the LPIS and consists of intercepting captains/mates/owners who have just completed a fishing trip and recording various lengths and weights by species. Additional information such as date, site and vessel name, vessel type, and if possible, gender of each fish will also be recorded during biological assignments. The annual target sample size for the LPBS is 1,000 interviews, selected from among the 575,408 fishing trips targeting large pelagic species. We anticipate that the response rate for LPBS will be similar to the LPIS, 90-95%.

As in previous years, the LPBS sampling effort will attempt to maximize the number of landed bluefin tuna available for sampling, and possibly target other high priority species for biological sampling as specified by NMFS. The sampling could include any combination of four different LPBS assignment types as follows: Fixed Date / Fixed Site(s), Fixed Date / Roving Site(s), Tournament, and Opportunistic.

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.

The LPS is used by NMFS to monitor recreational fisheries for large pelagics including tunas, billfish, sharks, dolphinfish, amberjack and wahoo. The LPS is used to collect the data needed for generating estimates of both the recreational fishing effort directed at large pelagic fishes and the recreational landings of these species. Accurate landings estimates are needed for effective quota monitoring of the recreational fishery for bluefin tuna (BFT) to meet U.S. obligation under international treaty (ICCAT). The LPS is also used to collect landings data for seasonal catch estimates for billfishes, sharks, and tunas other than BFT (e.g., yellowfin, albacore), and to collect biological data on BFT and other large pelagic species.

The LPS estimates landings by multiplying the estimated catch rate (average number of fish landed per trip) by the total number of vessel trips (landings = landings per trip * number of trips). The LPS consists of two complementary components: a directory frame telephone survey of tuna and/or HMS permit holders to obtain fishing trip information, and a dockside survey that collects landings information from anglers as they complete each trip and that also estimates the proportion of vessels fishing for large pelagics that are not in the telephone frame (non-permitted vessels and vessels fishing out of state).

Landings data are collected by interviewing boat captains or boat owners at the completion of a fishing trip for large pelagics and recording data on permit status of the vessel and the size, number, and species composition of the catch by all anglers on the vessel from that trip.

Dockside sampling is conducted throughout the fishing season on a monthly basis, generally from June through October. Sampling for each monthly reference period is stratified by state or region and kind of day (weekend vs. weekday). Sampling is conducted in stages; the primary sampling unit (PSU) is a site-day that comprises a combination of a selected fishing site (or cluster of sites) with a selected day, and the secondary sampling unit (SSU) is a completed fishing trip. Within strata, a sample of site-days is selected from a frame consisting of all possible combinations of site-days by a probability proportional to size without replacement sampling scheme, where the size measure for a given PSU is the expected number of large pelagic fishing trips that an interviewer would encounter. Within each PSU interviewers attempt to intercept and interview all eligible fishing trips that are completed during the interviewing assignment. Estimated catch rates for each state and month are calculated as weighted means of counts of fish reported per intercepted trip.

LPS fishing effort data are collected through a bi-weekly telephone survey of vessel owners about trips taken during the previous two-week period. The telephone survey sample frame consists of a list of vessels with associated vessel owners/permit holders compiled from tuna and/or HMS permit files, stratified by state or groups of states. Data collected on the telephone survey include participation status and, if verified as a participant in the fishery, the number of large pelagic fishing trips taken during the two weeks prior to the call. For each reference period, the estimate of total trips is calculated as the product of the mean number of trips per respondent and the total number of vessels on the sample frame. Bi-weekly estimates are then summed to produce monthly estimates for each stratum. An adjustment, derived from the LPIS, is applied to monthly effort estimates to account for fishing activity by vessels not included in the LPTS sample frame.

Total landings for each state and month are estimated by multiplying the adjusted total trips for each state by the estimated catch rate for each species. Variances, standard errors and coefficients of variation are estimated for each estimate of effort and catch.

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.

Participation in the LPS is mandatory for federally permitted fishing vessels. Consequently, response rates for both the LPTS and LPIS are typically high. Intensive interviewer training and tested methodological approaches are employed to maximize response rates. Interviewers are tested for skills in fish identification, effective communication with potential respondents, and/or accurate coding of responses before they are hired for training. Training familiarizes interviewers with procedures and develops their interviewing skills through role playing exercises. Supervision and additional training of interviewers occurs during the conduct of both the telephone and intercept surveys. Field supervisors visit intercept survey interviewers periodically to observe their performance and provide additional training as needed. To ensure consistency in survey administration, contractor staff and NMFS staff monitor live telephone interviewers.

Other data quality assurance and quality control measures include phone validation of dockside interviews, unannounced field visits by interviewer supervisors, data review meetings (local and coast-wide), and automated error-checking programs. Procedures for maintaining the integrity of the various sampling designs are closely tracked by NMFS to ensure proper execution.

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.

More than 15 years of testing, methodological research and professional experience in survey work were used in formulating the present methodology. In addition, NMFS is currently investigating approaches for improving the Large Pelagics Survey design and estimation procedures as part of the Marine Recreational Information Program (MRIP). It is likely that pilot tests will be implemented as part of this process.

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.

John Foster (301-427-8130) is the current NMFS contact for the Large Pelagics Survey. The current contractor for the dockside (LPIS) intercept survey is QuanTech, Inc. of Arlington, Virginia. The incumbent contractor for the telephone interview survey is also QuanTech. Data collections are performed under contract; NMFS staff performs analyses.