UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

January 31, 2023

MEMORANDUM FOR: The Record

FROM: Cisco Werner, Director of Scientific Programs and Chief Science Advisor, National Marine Fisheries Service

SUBJECT: Certification of Marine Recreational Information Program (MRIP) For-Hire Survey Methods

This memorandum certifies the For-Hire Survey (FHS) design described herein as an approved method for derivation of estimates of recreational fishing effort. The MRIP certification process is described in Procedural Directive 04-114-02 (see https://media.fisheries.noaa.gov/2021-06/04-114-02_06.28.2021_Howell%20signed.pdf?null). Specific Terms of Reference for this survey certification were also adopted (see attached).

BACKGROUND

NOAA Fisheries' Marine Recreational Information Program (MRIP) is the state-regional-federal partnership that develops, implements, and continually improves a national network of recreational fishing surveys to estimate total recreational catch. MRIP was initiated in 2008 to replace the Marine Recreational Fisheries Statistics Survey (MRFSS) which was NOAA Fisheries' prior recreational data collection program that had been in operation since 1979. MRFSS consisted of two primary surveys: the Coastal Household Telephone Survey (CHTS), a fishing effort telephone survey, and the Access Point Angler Intercept Survey (APAIS) where anglers were interviewed in-person at fishing access sites to obtain information about recreational catch. Catalysts for creating MRIP included an independent peer-review (National Academies of Sciences Engineering and Medicine, 2006) and the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. The new program revised the MRFSS survey methods to address issues identified by the review, and created the Fishing Effort Survey and a redesigned Access Point Angler Intercept Survey. These surveys have improved designs, implement more advanced statistical analyses, and address known sources of bias in the MRFSS surveys.

Prior to the MRFSS transition to MRIP, the FHS was developed to address undercoverage of charter and headboats in the CHTS. The CHTS collected data on angler fishing effort from a telephone-based random sample survey of residential households in coastal counties in coastal states, and did not obtain a sufficiently robust sample of for-hire vessels to produce reliable for-hire effort estimates. The FHS was initiated first as a pilot project in 1997 in the Gulf states

(Florida, Alabama, Mississippi, and Louisiana), then referred to as the 'Charter Boat Survey'. In 2000, the FHS began producing official estimates for the Gulf region, and in 2003, was expanded to the Atlantic coast. Since then, significant survey design changes have not been made, but in 2018, a web-based vessel directory was launched to improve sample frame management. Currently, the survey is conducted from Maine to Mississippi via cooperative agreements between NOAA Fisheries and the Regional Fisheries Information Networks (FINs): the Atlantic Coastal Cooperative Statistics Program in the Atlantic, and the GulfFIN in the Gulf of Mexico: the FINs select sample, coordinate data collection, develop and execute quality assurance and quality control procedures, and deliver data to NOAA Fisheries. Atlantic and Gulf state agency personnel collect the data, conducting the telephone interviews with vessel representatives.

DESCRIPTION OF METHOD

The FHS gathers data via telephone interviews of vessel representatives to estimate for-hire fishing effort along the Atlantic and Gulf Coasts. Respondents are asked to report vessel-fishing activity for the prior week and then recount details about each trip including the number of anglers who fished from the boat, hours spent fishing, method of fishing, target species and area fished (i.e., inland, State Territorial Seas, or Exclusive Economic Zone). These fishing effort data are used in conjunction with the catch data collected from the charter and headboat intercepts of the APAIS in order to estimate total for-hire catch.

Complete documentation of the FHS survey methods, survey instruments, and sample sizes, response rates, and precision estimates for 2018-2020 is provided in the attachments listed below.

CERTIFICATION

The FHS design as described in the attached file titled *FHS Survey Documentation* is certified as a design that has been appropriately developed and peer-reviewed and that is considered scientifically valid. With this certification, all components needed to produce for-hire catch estimates, which include the APAIS survey design, weighted estimation methods, and the FHS methods, have been certified. The practical effect of this certification is that NMFS may fund use of this design in surveys and fund and/or provide technical support for other similar designs proposed or used by partner organizations. It should be noted that if design changes are made after this survey is certified, those design changes must be documented and re-reviewed for the survey to maintain its certification.

This certified version of the FHS has a key difference in estimation from the version that has been implemented since 2003 and used in stock assessment and management applications, in that it does not use an additional dockside sampling component to apply a reporting error adjustment factor. Unlike the previous version of the FHS, which relied on opportunistic, non-probability

sampling methods to account for misreporting, the new method employs statistical best practices and quality checks to identify reporting errors.

Catch statistics produced using this certified version of the FHS will be used for fishery stock assessments and management actions once a transition plan is fully executed, pursuant to NMFS Policy Directive 04-114. Until that time, the current version of the FHS will be used to produce official statistics.

ATTACHMENTS
FHS Survey Documentation
Peer Review Terms of Reference, Reviewer Comments, and Response to Reviews
MRIP Program Management Team (PMT) Review and Recommendation
Executive Steering Committee Review and Recommendation
Draft FHS Transition Plan Outline

NOAA FISHERIES

Office of Science and Technology

Marine Recreational Information Program

Survey Designs and Estimation Methods for the For-Hire Survey and Large Pelagics Telephone Survey

2022 Certification Review Documentation

Table of Contents

Appendix E - LPTS Private Questionnaire

1. Introduction

Recreational fisheries catch and effort data collection is necessary to fulfill the requirements of Section 303 of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1852 et. seq.) and to comply with Executive Order 12962 on Recreational Fisheries. As per these requirements, NOAA Fisheries coordinates the Marine Recreational Information Program (MRIP), the state-regional-federal partnership that develops, improves, and implements a national network of surveys to collect recreational catch and effort data. As part of the improvement process and to promote nationwide consistency in data collection, MRIP has established a rigorous certification process for ensuring that recreational fisheries survey designs and estimation methods are scientifically sound. The resulting catch and effort statistics produced by the program are used to determine the effects of fishing on fish stocks and develop sound management strategies and policies.

The MRIP surveys designed and administered by the NOAA Fisheries Office of Science and Technology include the following: the Access Point Angler Intercept Survey (APAIS), the Fishing Effort Survey (FES), the For-Hire Survey (FHS), and the Large Pelagics Survey (LPS). The LPS consists of two component surveys used to estimate catch and effort targeting large pelagic species: a telephone survey (LPTS) and an intercept survey (LPIS). This suite of surveys are primarily implemented along the U.S. Atlantic and Gulf of Mexico coasts, and estimates are combined to estimate total effort and catch by species and recreational fishing mode (i.e. shore fishing, private boat fishing, and charter/headboat fishing). Of the surveys administered by NOAA Fisheries Office of Science and Technology, the APAIS and the FES have been certified, and the FHS, LPTS and LPIS have been working towards certification.

This document describes the current FHS and LPTS methods to be evaluated for certification. It details both survey designs and statistical methods for estimating base for-hire and LPS effort and a coverage adjustment for the FHS along with the total effort estimation processes at the wave- and annual-level for the FHS (Note: a similar coverage adjustment is calculated and applied to the LPTS base effort to obtain LPTS total effort. However, it is not included in this document because the adjustment is derived from the LPIS, which is currently being redesigned and will be put forth for

certification review at a later date. The two surveys are being presented in a single certification package because, while the FHS and LPTS data are used to produce two separate sets of effort estimates, the surveys have similar designs and the for-hire component of the LPTS (referred to as the "LPTS Add-on") is conducted as part of the FHS.

2. For-Hire Survey

2.1 Survey Background

The FHS gathers data via telephone interviews of vessel representatives to estimate for-hire fishing effort. Participation in the FHS is voluntary: respondents are asked to report vessel-fishing activity for the prior week and then recount details about each trip including the number of anglers who fished from the boat, hours spent fishing, method of fishing, target species and area fished. Areas fished include three general saltwater fishing areas, meant to inform fishery managers at state, regional, and federal levels: 1) inland waters, 2) nearshore waters (State Territorial Seas) and 3) offshore waters (federal Exclusive Economic Zone). Inland waters include marine or brackish interior portions of bays, estuaries, sounds or coastal rivers. The dividing line between State Territorial Seas and the EEZ is three nautical miles in most states, but 10 nautical miles off the west coast of Florida. The EEZ extends from the State Territorial Seas to 200 nautical miles from the coastline. The FHS data are used to produce bimonthly and annual point estimates of recreational fisheries effort in numbers of angler trips targeting finfish by state, fishing mode (see Appendix A for precision of estimates from 2018-2020). These fishing effort data are used in conjunction with the catch data collected from the charter and headboat intercepts of the APAIS (one of MRIP's certified surveys) in order to estimate total for-hire catch.

The FHS was initially developed to address undercoverage of charter and headboats in the Coastal Household Telephone Survey, the predecessor of the FES (another of MRIP's certified surveys) that was used to produce fishing effort estimates from 1981-2017. The FHS was initiated as a pilot project in 1997, then referred to as the 'Charter Boat Survey,' and was only conducted in Gulf of Mexico states (Florida, Alabama, Mississippi and Louisiana). This Gulf FHS was officially used to estimate charter boat fishing effort starting in 2000, and in that year, research was undertaken to

expand it for both charter and headboat effort. In 2003, the current version of the FHS started being implemented along the Atlantic Coast.

The FHS is conducted via cooperative agreements between NOAA Fisheries and the Regional Fisheries Information Networks (FINs): the Atlantic Coastal Cooperative Statistics Program in the Atlantic, and the GulfFIN in the Gulf of Mexico. The FINs select sample, coordinate data collection, develop and execute quality assurance and quality control procedures, and deliver data to NOAA Fisheries. Atlantic and Gulf state agency personnel collect the data, conducting the telephone interviews with vessel representatives.

2.2 Sampling Design

The FHS has a stratified design, with for-hire vessels as sampling units. Sampling is stratified by sub-region, state, sub-state region (applicable to Florida only, which has five sub-state regions: FL panhandle, FL peninsula, FL keys, FL southeast, and FL northeast), vessel type (charter boat or headboat), and sample week within each two-month wave. For the purposes of the survey, the sample week is Monday through Sunday.

The sample frame is constructed two weeks prior to the sampling wave from a continually updated directory of known for-hire vessels from Maine to Mississippi. Vessel records in the for-hire vessel directory contain a vessel identifier (vessel name or registration number); county and state (as well as site, if known) in which the vessel operates; contact information for the vessel representative (captain, owner, or proxy) including name, address and telephone number; vessel status; and the vessel's cooperation level. Vessel status is listed in the directory as active, (i.e., currently participates in for-hire fishing activities), inactive (i.e., does not currently participate in for-hire fishing activities; for example, a vessel would be considered inactive if is being repaired, or has switched to commercial fishing for a period of time) or ineligible (i.e., will no longer participate in for-hire activities). Cooperation levels are either cooperative, where the vessel representative responds to telephone interviews, or non-cooperative, where the vessel representative does not respond or refuses to participate. The vessel directory is updated regularly based on input from APAIS samplers, state FHS coordinators and vessel representatives. The directory can also be updated with information obtained during the telephone survey. For example, if a vessel representative reports that a vessel will be inactive for a certain period of time, such information will be added to the directory.

To be included in the sample frame, a vessel must meet three criteria. First, the vessel's status must be active. Second, there must be complete contact information, including the vessel identifier and at least one telephone number for the vessel representative. Third, the county and state in which the vessel operates must be known. If the vessel does not meet these criteria, it remains in the vessel directory but is excluded from the sample frame. Vessels that are non-cooperative are kept in the sample frame but are automatically coded as a refusal and are not actually contacted if selected for sampling.

Prior to the sample selection, the sample frame is sorted by three additional variables, creating three additional implicit strata: business county, vessel length, and permit type. The business county variable is the county in which the vessel operates. The vessel length variable simply categorizes the vessels as small, medium and large. Permit types are Highly Migratory Species (HMS) Charter/Headboat Category permit or non-HMS permit; additional questions, related to the Large Pelagics Survey, are asked for the HMS-permitted vessels. In addition to these three variables, a uniform random variable is created and used to randomly order vessels within the business county, vessel length, and permit type groups.

Sample selection is then systematically done without replacement at the stratum level (by vessel type, state, sub-state region [in Florida], sample week, and by the implicit strata from the sample frame sorting process: business county, vessel length, and permit type). The FHS has a fixed sampling rate of 10% within strata. In addition, there is a minimum sample size requirement of three vessels from each stratum (see Appendix B for sample sizes in recent years).

2.3 Data Collection Design

The sample selection is completed on the 13th of the month before the start date of each two-month wave. All interviews are conducted where interviewers follow a script, either written or provided by a software application to interview vessel representatives (see Appendices C and D for the full Atlantic and Gulf FHS questionnaires). The interviews are conducted in the 7 days immediately following a reference week, giving the vessel representatives a recall period of 7-14 days. This timeframe was chosen to minimize both the potential for recall error as well as the reporting burden during the interview.

A minimum of seven attempts are made to contact the selected vessel representatives during a reporting period. The first attempt is made on the first day following the reference week (i.e., Monday) and the remaining attempts are spread over the rest of this sampling week as day and evening attempts. Day attempts are before 5PM, and evening attempts are between 5PM and 9PM. If someone other than the selected vessel representative answers the phone during one of the seven initial attempts, additional attempts are made until the end of the sampling week in order to obtain a response to complete the survey. While there is no limit to the number of calls that can be attempted during the sample week, interviewers are instructed to not make more than three call attempts per day to an individual vessel representative.

To improve response rates, an advance letter is mailed to the representatives of all selected vessels one week before the reference week (i.e., two weeks before the phone interview). The letter details the dates of the reference week that representatives will be asked about during the interview, the contact information of the organization conducting FHS interviews, and a logsheet with the questions that will be asked. Respondents are encouraged to complete the logsheet prior to the call, as it may reduce the potential for recall bias and decrease the time needed to complete the survey over the phone (see Appendix B for response rates in recent years).

The key data collected in the telephone interviews are:

- the number of vessel trips with paying passengers in the reference week;
- the date of each vessel trip;
- the fishing mode of each vessel trip;
- the number of anglers on each vessel trip;
- the state/county and site where each vessel trip returned;
- the fishing methods used during each vessel trip;
- the targeted species for each vessel trip;
- the fishing area for each vessel trip;
- the distance from shore where each vessel trip occurred;
- the hours spent fishing for each vessel trip; and
- the return time for each vessel trip.

2.4 Quality Control Measures

There are two methods of data validation used to ensure accuracy and quality during and after FHS data collection, including in-person monitoring (listening to a

subset of interviews in real-time to ensure interviewer protocols are being followed), or post-validation (following-up with a subset of vessel representatives after their interviews to confirm answers). For quality control of the telephone interviews, approximately 10% of each interviewer's work is validated either by in-person monitoring or post-validation phone calls. Beyond these validation methods, the data are reviewed and checked thoroughly for errors prior to use in estimation. Partners document the results of all of these quality control measures and provide them to NOAA Fisheries as requested.

2.4.1 In-Person Monitoring of Telephone Interviews

In-person monitoring validates results in real-time, where a peer or supervisor listens to phone interviews, and views data entry screens. Monitoring reports are completed for each monitoring session, and the results of each are discussed directly with the interviewer.

2.4.2 Post-Validation of Telephone Interviews

Re-contacts of a subset of vessel representatives are attempted after each sample week to verify that 1) the interview took place and 2) that the responses were coded correctly by the FHS interviewer. At a minimum, the total number of vessel trips; the number of anglers who fished, the date, state, fishing mode, and distance from shore of each trip that was recorded during the interview is confirmed during the re-contact to validate the coding of original responses.

2.4.3 Data Review

Data are checked for errors by partners prior to data delivery to NOAA Fisheries. Following data entry and processing for the wave, partners run error check programs that automatically review all data elements for data entry errors, reasonableness in falling within an acceptable range, use of valid codes, and logic in relation to other data elements. Any questionable records identified by the programs are reviewed by the FHS partner, and may involve a call-back to a vessel representative, or checking with the interviewer.

2.5 Estimation Methods

2.5.1 Base Effort Estimation

For-hire fishing effort is estimated in numbers of trips per sub-region, state (and sub-state region in Florida), two-month wave, vessel type, and fishing area. To obtain a base estimate of fishing effort in a given wave, vessel type, and fishing area, the number of angler trips in each fishing area per sample week is estimated, and then estimates are summed over the weeks in the two-month wave within vessel type and fishing area domains. The number of angler trips per vessel type and sample week ($\hat{T}_h$) is estimated as:

$$\hat{T}_h = \frac{N_h}{n_h} \sum_{i=1}^{n_h} t_{hi} = N_h \hat{\bar{t}}_h$$

where t_{hi} is the number of angler trips aboard vessel i (out of vessels 1...n_h) in stratum h; N_h is the total number of vessels in stratum h (vessel type by sample week); and n_h is the number of responding vessels, or those vessels otherwise eligible for use in estimation (e.g., inactive vessels that are drawn but not contacted) within stratum h.

The associated variance is estimated as:

$$\hat{V}(\hat{T}_h) = N_h^2 \frac{(1-\frac{n_h}{N_h})}{n_h(n_h-1)} \sum_{i}^{n_h} (t_{hi} - \hat{\bar{t}}_h)^2 .$$

The base estimate of the number of angler trips by vessel type and area fished ($\hat{T}$) and its variance in a wave are then estimated as:

$$\hat{T} = \sum_h \hat{T}_h$$

and

$$\hat{V}(\hat{T}) = \sum_h \hat{V}(\hat{T}_h) .$$

2.5.2 Coverage Adjustment for Off-Frame Trips

The FHS will miss any unregistered vessels that are not included on the FHS sample frame. However, the APAIS intercepts a representative sample of angler trips taken aboard both registered and unregistered vessels. To determine in-frame vs out-of-frame trips, all of the for-hire angler-trips intercepted by APAIS are cross-checked with vessels on the FHS sample frame.

The FHS coverage adjustment, which is the estimated proportion of the total intercepted angler trips to in-frame angler trips within domain d ($\hat{p}_{d(v)}$), is estimated as:

$$\hat{p}_{d(v)} = \frac{\sum_{h=1}^{H}\sum_{i=1}^{n_h}\sum_{j=1}^{m_{hi}} w_{hij} I_{d(h,i,j)} I_{hij,v}}{\sum_{h=1}^{H}\sum_{i=1}^{n_h}\sum_{j=1}^{m_{hi}} w_{hij} I_{d(h,i,j)}}$$

where w_{hij} is the final APAIS sample weight described in section 2.3.1;

$I_{d(h,i,j)}$ is an indicator variable that equals 1 if (h,i,j) is in domain d or 0 if otherwise; and,

$I_{hij,v}$ is an indicator variable that equals 1 if angler trip j was completed from a vessel on the FHS sample frame, and 0 if otherwise.

The variance of $\hat{p}_{d(v)}$ is approximated as

$$\hat{V}(\hat{p}_{d(v)}) = \sum_{h=1}^{H} \left(\frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} \left(\frac{\left(\sum_{j=1}^{m_{hi}} w_{hij} I_{d(h,i,j)} (I_{hij,v} - \hat{p}_{d(v)}) \right)}{\sum_{h=1}^{H}\sum_{i=1}^{n_h}\sum_{j=1}^{m_{hi}} w_{hij} I_{d(h,i,j)}} - \frac{\sum_{i=1}^{n_h} \frac{\sum_{j=1}^{m_{hi}} w_{hij} I_{d(h,i,j)} (I_{hij,v} - \hat{p}_{d(v)})}{\sum_{h=1}^{H}\sum_{i=1}^{n_h}\sum_{j=1}^{m_{hi}} w_{hij} I_{d(h,i,j)}}}{n_h} \right)^2 \right).$$

3. Large Pelagics Telephone Survey

3.1 Survey Background

The Large Pelagics Telephone Survey (LPTS) collects fishing effort information from private and charter boats targeting large pelagics and Highly Migratory Species (HMS) such as tunas, billfishes, swordfish, sharks and others in offshore marine waters from Maine through Virginia. The survey targets vessels with NOAA HMS fishing permits, and if contacted, anglers are required to participate in the Large Pelagics Surveys (50 CFR 635.5(c)(3)). The resulting data are used to estimate the total number of trips in which anglers fished from private or for-hire boats for large pelagics and HMS using hand gear (e.g. rod and reel). The LPTS data are used to produce monthly and annual point estimates of fishing trips targeting large pelagics species by state/area and fishing mode (see Appendix A for precision of 2019 estimates). The LPTS data is used in conjunction with the catch data collected by the Large Pelagics Intercept Survey (LPIS) in order to estimate total catch for large pelagic species and HMS. The LPIS is currently undergoing a redesign, with an anticipated completion date of 2023.

The LPTS is typically conducted from June-October when the majority of the large pelagic and HMS fishing activity occurs from Maine through Virginia. Occasionally the LPS sampling period is extended for an extra two months on either end of the season (May-November) in order to confirm that the current temporal coverage is not missing significant off-season fishing activity. While estimates for all other MRIP surveys are produced every two months, LPS estimates are produced monthly. This difference allows MRIP to provide frequent landings updates to HMS managers for better tracking and monitoring of recreational quotas in-season. In addition, the monthly estimation of HMS catch abides by the International Commission for the Conservation of Atlantic Tunas 2010 measure, which requires monthly reporting of bluefin tuna landings (International Commission for the Conservation of Atlantic Tunas, 2010). At the end of each fishing season, annual catch and effort estimates are produced in a similar manner to the other MRIP surveys.

Since large pelagic and HMS fishing trips are specialized, targeting specific species using distinct fishing methods, they are difficult to sample and are not often captured by the general MRIP surveys (the APAIS, FES and FHS). The LPTS and LPIS

were originally designed to increase coverage of these trips. Both surveys have been ongoing since 1986, albeit with numerous changes in methodology and coverage over the years (especially in the early years of the surveys, these changes are not all well documented). The first 19 years of the surveys were managed by the NOAA Fisheries Sustainable Fisheries HMS Management Division. In 2005, the NOAA Fisheries Office of Science and Technology Statistics Division assumed responsibility for administering these surveys. There were additional changes in the first few years after this transfer of responsibility, but the current LPTS and LPIS designs have remained largely unchanged since MRIP was initiated in 2008.

The LPTS consists of two separate but similar survey designs to collect information from for-hire and private vessels targeting large pelagics and HMS. The LPTS for-hire vessels are sampled as an add-on to the FHS, since, as described in section 2.2, the FHS vessel directory includes Charter/Headboat Category HMS permitted vessels, and this permit category is an implicit stratum of the sampling design. The LPTS private boat sampling (referred to as “LPTS Private”) is independent of the FHS, and captures effort from private boats targeting large pelagics and HMS.

3.2 Sampling Design

3.2.1 LPTS Add-On

As this component of the LPTS is conducted as part of the FHS, the sampling design is as described in section 2.2. During the months that the LPTS operates (typically June-October), the for-hire vessel representatives selected for FHS sampling are asked screening questions (e.g., if they targeted HMS on their recent trips) and a series of LPTS Add-On questions in order to collect charter and head boat effort information specific to the LPS. Since charterboats and headboats are under the same HMS permit they are considered a single, charter boat fishing mode for the purposes of the LPS.

The Charter/Headboat category HMS permitted vessels in the FHS sample frame include vessels that may not actually be used for charter trips, but still have the Charter/Headboat permit. These vessels are sampled as part of the FHS/LPTS Add-On, but the data collected from these trips are considered private trips for the purposes of the FHS. Trips targeting large pelagic species by these vessels are considered charter mode trips for the purposes of the LPS. This difference between

permit type and fishing behavior has created complications and concerns with some state agency partners conducting the FHS and APAIS.

3.2.2 LPTS Private

The LPTS Private sampling design is stratified geographically by state (although there are three, two-state areas: Maryland and Delaware, Connecticut and Rhode Island, and New Hampshire and Maine) and temporally in two-week reference periods. The sample frame is created from a comprehensive directory of vessels with the following NOAA issued permits: an Atlantic Tunas General Permit, a Swordfish General Permit, a Tuna/Swordfish General Combination Permit, and an HMS Angling Category Permit. The vessel permit database is updated continuously to maintain accurate records. To be included in the sample frame, vessels in the vessel directory must have the following information: the name, address and telephone number of a vessel representative; the state in which the vessel operates; and a vessel name or identification number.

The LPTS Private sample frame is compiled in late May, late June, and late August, and the sample is selected from each sample frame for all of the two-week reference periods occurring within each wave. The sample is selected in this manner for operational and logistical reasons. The sample is selected using stratified random sampling without replacement. LPTS private boat sample sizes vary by state and sample week and are determined by historical sample sizes (see Appendix B), historical effort distributions, improving precision of catch estimates for priority species, and available funding.

3.3 Data Collection Design

3.3.1 LPTS Add-On

During the months in which the LPS operates (typically June-October), interviews conducted as part of the FHS ask additional questions related to large pelagic and HMS fishing. Prior to the telephone interviews, for-hire vessels with HMS permits from Maine through Virginia receive, in addition to the standard FHS advance letter, a letter from NOAA Fisheries explaining the reporting requirements for HMS, and a LPTS logsheet in lieu of the FHS logsheet. At the start of the telephone interview, vessel representatives are asked screening questions of whether they hold an HMS permit and whether they targeted large pelagic species during the reference period. If the answer to either

question is 'yes,' LPS-specific questions are asked in addition to the FHS questions. The data related to LPS charter effort estimation collected in these interviews are: the number of vessel trips taken targeting large pelagics and HMS; the state where each trip took place; the state to which the vessel returned; the date and duration of each trip; the fishing gear used; and species targeted.

3.3.2 LPTS Private

For the LPTS Private data collection, telephone interviewing for each two-week reference period is conducted during the seven-day period (Monday-Sunday) immediately following that reference period. Interviewing is done using a CATI system similar to that of the FHS (see Appendix E for the full LPTS Private questionnaire).

One week prior to the two-week reference period, all vessel representatives receive a letter by mail, notifying them that they have been selected for participation in the survey. The letter includes the date(s) for which the vessel has been selected to report, as well as the date(s) when calling will be attempted.

A maximum of 10 attempts are made to contact each selected vessel representative. First attempts are made on the Monday immediately following the two-week reference period, and repeat attempts are distributed among weekend and weekdays, as well as days and evenings. The dialing pattern for each vessel representative includes at least one day attempt (before 5:00PM local time for the area being sampled) and three night attempts (after 5:00PM local time for the area being sampled). The interviews are conducted in the 7 days immediately following a reference two-week period, giving the vessel representatives a recall period of 7-21 days. This timeframe was chosen to minimize the potential for recall error and because, in general, LPTS Private trips are relatively infrequent.

3.4 Quality Control Measures

The LPTS Add-On quality control measures are identical to the FHS measures described in section 2.4. These include in-person monitoring of interviews and data review.

On the LPTS Private, silent monitoring validates results in real-time, where a peer or supervisor listens to phone interviews, and remotely views data entry screens.

Silent monitoring reports are completed for each silent monitoring session, and the results of each are discussed directly with the interviewer. For additional quality control and performance monitoring, NOAA Fisheries coordinates with the contractor to conduct silent monitoring during telephone interviews. These monitoring sessions are typically done ad hoc (e.g. if new interviewers are hired and NOAA Fisheries staff wants to observe their performances). During these calls, NOAA Fisheries staff would listen to ensure that all procedures and protocols are being adhered to. If evidence arises that proper protocol is not being followed, NOAA Fisheries would produce notes from the silent monitoring session to discuss with the contractor survey program manager.

3.5 Base Effort Estimation Methods

LPTS effort is calculated as a domain estimate of the number of vessel trips targeting large pelagic species in a given month, year, state and fishing mode (charter boat or private boat). However, LPTS samples are collected by state, fishing mode and reference period, which is one week for the LPTS Add-On and two weeks for the LPTS Private. Therefore, a weighted sum of the LPS trip indicator variable is used to obtain the domain estimate of the number of in-frame vessel trips:

$$\hat{b}_d = \sum_{h=1}^{H} \sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} \frac{N_h}{n_h} b_{hij} I_{d(h,i,j)}$$

where $\hat{b}_d$ is the total number of vessel trips taken in domain d;

$h = 1,\ldots H$ represents the strata, defined by year, sample week, state and fishing mode;

$i = 1,\ldots n_h$ represents the number of responding vessels sampled within stratum h ;

$j = 1,\ldots m_{hi}$ represents the trips taken by vessel i in stratum h;

b_{hij} is an indicator variable for a trip targeting LPS taken by vessel i in stratum h that equals 1 if the trip targeted LPS and 0 if otherwise;

$I_{d(h,i,j)}$ is an indicator variable that equals 1 if (h, i, j) is domain d or 0 if otherwise;

N_h is the total number of vessels in the sample frame within stratum h; and,

The variance of $\hat{b}_d$ is estimated as

$$\widehat{V}(\widehat{b}_d) = \sum_{h=1}^{H} \frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} \left(\sum_{j=1}^{m_{hi}} \left(\frac{N_h}{n_h} b_{hij} I_{d(h,i,j)} \right) - \frac{\sum_{i=1}^{n_h} \sum_{j=1}^{m_{hi}} \frac{N_h}{n_h} b_{hij} I_{d(h,i,j)}}{n_h} \right)^2 .$$

4. References

Gray, G. W., L. L. Kline, M. F. Osborn, R. J. Salz, D. A. Van Voorhees, and J. F. Witzig. 1994. MRFSS User's Manual: A Guide to Use of the National Marine Fisheries Service Marine

Goodman, L. A. 1960. On the Exact Variance of Products. Journal of the American Statistical Association, 55: 708. http://www.jstor.org/stable/2281592?origin=crossref (Accessed 30 November 2016).

International Commission for the Conservation of Atlantic Tunas. 2010. Report for Biennial Period 2010-2011.

Magnuson–Stevens Fishery Conservation and Management Act (P.L. 94-265, as amended through P.L. 109-479) (2007).

National Academies of Sciences Engineering and Medicine. 2006. Review of Recreational Fisheries Survey Methods. The National Academies Press, Washington, D.C.

National Academies of Sciences Engineering and Medicine. 2017. Review of the Marine Recreational Information Program. National Academies Press, Washington, D.C.

Title 50—Wildlife and Fisheries CFR 635.5(c)(3) (1999)

APPENDIX A: 2018-2020 FHS and 2019 LPTS Precision of Estimates

For Hire Estimates (FHS)

			Region									
			GULF OF MEXICO		SOUTH ATLANTIC		MID-ATLANTIC		NORTH ATLANTIC		All Regions	
			Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Wave	Area										
2018	1	INLAND	29499	19%	6373	19%	.	.	.	.	35872	16%
		OCEAN (STATE)	34931	16%	5165	37%	.	.	.	.	40096	15%
		OCEAN (FEDERAL)	48203	17%	4688	30%	.	.	.	.	52891	16%
		ALL AREAS	112633	10%	16226	16%	.	.	.	.	128859	9%
	2	INLAND	63590	13%	31532	12%	12507	18%	1179	12%	108808	9%
		OCEAN (STATE)	54105	10%	24925	34%	1333	14%	25	7%	80388	13%
		OCEAN (FEDERAL)	70354	12%	22542	16%	4293	15%	1714	9%	98903	9%
		ALL AREAS	188049	7%	78999	13%	18133	13%	2918	7%	288099	6%
	3	INLAND	42457	13%	43462	10%	144079	8%	39719	10%	269717	5%
		OCEAN (STATE)	78212	9%	40125	16%	37034	17%	17342	16%	172713	7%
		OCEAN (FEDERAL)	142608	9%	71635	10%	59059	14%	21477	7%	294779	6%
		ALL AREAS	263277	6%	155222	7%	240172	7%	78538	7%	737209	3%
	4	INLAND	29641	13%	66719	13%	172442	8%	57531	8%	326333	5%
		OCEAN (STATE)	65445	9%	51743	18%	67675	9%	51425	11%	236288	6%
		OCEAN (FEDERAL)	130154	9%	67351	11%	111840	12%	48641	17%	357986	6%
		ALL AREAS	225240	6%	185813	8%	351957	6%	157597	7%	920607	3%
	5	INLAND	19685	15%	17797	12%	51332	13%	16820	10%	105634	7%
		OCEAN (STATE)	21254	12%	11713	20%	19976	14%	5540	22%	58483	8%
		OCEAN (FEDERAL)	34580	11%	21756	15%	34624	11%	11227	21%	102187	7%
		ALL AREAS	75519	7%	51266	9%	105932	8%	33587	9%	266304	4%

(Continued)

For Hire Estimates
(FHS)

			Region									
			GULF OF MEXICO		SOUTH ATLANTIC		MID-ATLANTIC		NORTH ATLANTIC		All Regions	
			Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Wave	Area										
2018	6	INLAND	19968	18%	18953	12%	20195	21%	2956	7%	62072	10%
		OCEAN (STATE)	20954	14%	8373	30%	16403	13%	184	8%	45914	10%
		OCEAN (FEDERAL)	33496	15%	8586	19%	17231	16%	1059	2%	60372	10%
		ALL AREAS	74418	9%	35912	11%	53829	10%	4199	5%	168358	6%
	ALL WAVES	INLAND	204840	6%	184836	6%	400555	5%	118205	5%	908436	3%
		OCEAN (STATE)	274901	5%	142044	10%	142421	7%	74516	9%	633882	4%
		OCEAN (FEDERAL)	459395	5%	196558	6%	227047	7%	84118	10%	967118	3%
		ALL AREAS	939136	3%	523438	4%	770023	4%	276839	4%	2509436	2%
2019	1	INLAND	36666	16%	10090	24%	.	.	.	.	46756	14%
		OCEAN (STATE)	22424	15%	10775	24%	.	.	.	.	33199	13%
		OCEAN (FEDERAL)	45370	14%	7445	25%	.	.	.	.	52815	13%
		ALL AREAS	104460	9%	28310	14%	.	.	.	.	132770	8%
	2	INLAND	44335	15%	37870	15%	11974	33%	756	9%	94935	10%
		OCEAN (STATE)	69216	13%	23011	20%	1330	23%	123	10%	93680	11%
		OCEAN (FEDERAL)	114640	14%	22230	13%	4234	25%	1620	5%	142724	11%
		ALL AREAS	228191	8%	83111	9%	17538	23%	2499	4%	331339	6%
	3	INLAND	39907	13%	46946	10%	137228	10%	50391	11%	274472	6%
		OCEAN (STATE)	93836	11%	26654	17%	46138	19%	10131	13%	176759	8%
		OCEAN (FEDERAL)	175577	11%	81432	11%	64663	23%	21285	10%	342957	8%
		ALL AREAS	309320	7%	155032	7%	248029	9%	81807	8%	794188	4%

(Continued)

For Hire Estimates
(FHS)

			Region									
			GULF OF MEXICO		SOUTH ATLANTIC		MID-ATLANTIC		NORTH ATLANTIC		All Regions	
			Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Wave	Area										
2019	4	INLAND	31739	14%	83344	10%	197041	9%	137620	11%	449744	6%
		OCEAN (STATE)	47722	10%	47291	19%	76369	16%	55345	18%	226727	8%
		OCEAN (FEDERAL)	163157	9%	81539	11%	119503	20%	25387	8%	389586	8%
		ALL AREAS	242618	7%	212174	7%	392913	8%	218352	8%	1066057	4%
	5	INLAND	16891	16%	37545	12%	65440	9%	28402	15%	148278	6%
		OCEAN (STATE)	37752	15%	10321	21%	22433	11%	4533	20%	75039	9%
		OCEAN (FEDERAL)	105732	17%	14671	17%	41647	21%	9553	10%	171603	12%
		ALL AREAS	160375	12%	62537	9%	129520	8%	42488	10%	394920	6%
	6	INLAND	20493	17%	19195	14%	16532	15%	2292	9%	58512	9%
		OCEAN (STATE)	20216	19%	10169	26%	14437	32%	593	24%	45415	14%
		OCEAN (FEDERAL)	54697	13%	7945	19%	19647	29%	1221	2%	83510	11%
		ALL AREAS	95406	9%	37309	11%	50616	15%	4106	6%	187437	7%
	ALL WAVES	INLAND	190031	6%	234990	5%	428215	6%	219461	7%	1072697	3%
		OCEAN (STATE)	291166	6%	128221	9%	160707	10%	70725	14%	650819	4%
		OCEAN (FEDERAL)	659173	5%	215262	6%	249694	12%	59066	5%	1183195	4%
		ALL AREAS	1140370	4%	578473	4%	838616	5%	349252	6%	2906711	2%
2020	1	INLAND	47536	14%	12449	15%	.	.	.	.	59985	11%
		OCEAN (STATE)	33795	15%	6499	24%	.	.	.	.	40294	14%
		OCEAN (FEDERAL)	84890	14%	4742	18%	.	.	.	.	89632	13%
		ALL AREAS	166221	9%	23690	11%	.	.	.	.	189911	8%

(Continued)

For Hire Estimates
(FHS)

			Region									
			GULF OF MEXICO		SOUTH ATLANTIC		MID-ATLANTIC		NORTH ATLANTIC		All Regions	
			Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Wave	Area										
2020	2	INLAND	21748	16%	16515	14%	147	15%	2	35%	38412	11%
		OCEAN (STATE)	15877	16%	8342	31%	25	7%	10	0%	24254	15%
		OCEAN (FEDERAL)	27840	19%	12014	16%	552	25%	15	3%	40421	14%
		ALL AREAS	65465	11%	36871	11%	724	19%	27	3%	103087	8%
	3	INLAND	58680	10%	60186	11%	98755	17%	10800	18%	228421	8%
		OCEAN (STATE)	78862	10%	19371	16%	20328	12%	10685	18%	129246	7%
		OCEAN (FEDERAL)	153685	8%	68143	11%	31519	8%	16692	14%	270039	5%
		ALL AREAS	291227	5%	147700	7%	150602	11%	38177	9%	627706	4%
	4	INLAND	69431	9%	77117	11%	154809	10%	41808	15%	343165	6%
		OCEAN (STATE)	60856	10%	34457	14%	58530	7%	38480	12%	192323	5%
		OCEAN (FEDERAL)	185682	8%	93480	11%	82102	8%	38303	10%	399567	5%
		ALL AREAS	315969	5%	205054	7%	295441	6%	118591	7%	935055	3%
	5	INLAND	31612	13%	51826	11%	89027	12%	11638	13%	184103	7%
		OCEAN (STATE)	28711	13%	17327	15%	26422	13%	11450	16%	83910	7%
		OCEAN (FEDERAL)	52487	11%	29973	15%	42803	6%	17565	9%	142828	6%
		ALL AREAS	112810	7%	99126	8%	158252	7%	40653	7%	410841	4%
	6	INLAND	25705	14%	38848	16%	20319	17%	3027	16%	87899	9%
		OCEAN (STATE)	16781	13%	12285	25%	14182	10%	1152	9%	44400	9%
		OCEAN (FEDERAL)	47449	13%	14951	18%	19071	8%	2869	12%	84340	8%
		ALL AREAS	89935	8%	66084	11%	53572	7%	7048	9%	216639	5%

(Continued)

For Hire Estimates
(FHS)

			Region									
			GULF OF MEXICO		SOUTH ATLANTIC		MID-ATLANTIC		NORTH ATLANTIC		All Regions	
			Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Wave	Area										
2020	ALL WAVES	INLAND	254712	5%	256941	5%	363057	7%	67275	10%	941985	3%
		OCEAN (STATE)	234882	5%	98281	8%	119487	5%	61777	8%	514427	3%
		OCEAN (FEDERAL)	552033	4%	223303	6%	176047	4%	75444	6%	1026827	3%
		ALL AREAS	1041627	3%	578525	4%	658591	4%	204496	5%	2483239	2%

Charter Mode Estimates
(LPTS Add-On)

		Area																	
		VA		MD/DE		NJ(S)		NJ(N)		NY		CT/RI		MA		NH/ME		All Areas	
		Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Month																		
2019	6	116	60%	579	33%	288	26%	272	26%	221	29%	.	.	210	52%	.	.	1687	15%
	7	93	47%	747	23%	266	24%	316	24%	914	27%	149	39%	870	23%	146	52%	3501	11%
	8	46	68%	652	27%	329	31%	144	31%	339	33%	145	38%	536	27%	24	100%	2215	13%
	9	62	78%	439	37%	42	38%	91	38%	280	40%	118	47%	1039	24%	187	58%	2260	15%
	10	20	100%	0	.	16	49%	178	49%	153	100%	13	100%	921	23%	14	100%	1315	21%
	All Months	337	30%	2417	14%	942	15%	1002	15%	1908	18%	426	23%	3576	12%	371	36%	10978	6%

Private Mode Estimates
(LPTS Private)

		Area																	
		VA		MD/DE		NJ(S)		NJ(N)		NY		CT/RI		MA		NH/ME		All Areas	
		Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE	Total Trips	PSE
Year	Month																		
2019	6	676	24%	1579	16%	2035	18%	1017	18%	2023	18%	.	.	396	44%	.	.	7725	8%
	7	491	23%	2359	13%	3050	14%	798	14%	2988	22%	553	28%	2479	20%	1267	25%	13986	8%
	8	561	30%	2206	20%	3902	15%	409	15%	1029	21%	530	25%	4121	19%	1255	26%	14013	8%
	9	649	26%	1257	24%	896	22%	533	22%	732	28%	615	29%	2848	18%	839	25%	8370	9%
	10	152	37%	129	49%	313	38%	215	38%	248	63%	596	100%	1140	33%	361	40%	3155	24%
	All Months	2529	12%	7531	9%	10197	8%	2973	9%	7020	12%	2294	29%	10984	10%	3721	14%	47250	4%

FHS Summary by Year, Wave (MS-ME)

Year	Wave	Sampling Weeks	Vessels on Frame	Avg Vessels Sampled (Per Week)	Avg Sampling Fraction (Per Week)	Avg Response Rate (Per Week)
2018	1	8	3097	315.875	10.20%	67.95%
2018	2	9	6137	644	10.49%	60.02%
2018	3	9	7348	790.55556	10.76%	58.13%
2018	4	9	7395	793.66667	10.73%	54.95%
2018	5	8	7308	762	10.43%	56.43%
2018	6	9	6616	686	10.37%	59.51%
2019	1	9	3052	307.77778	10.08%	63.79%
2019	2	8	5687	592	10.41%	57.41%
2019	3	9	7327	790.33333	10.79%	58.57%
2019	4	9	7496	796.22222	10.62%	57.15%
2019	5	9	7514	780	10.38%	58.22%
2019	6	8	6450	666	10.33%	59.01%
2020	1	9	2910	293	10.07%	60.98%
2020	2	9	5801	604	10.41%	64.15%
2020	3	8	7443	1023.875	13.76%	62.30%
2020	4	9	7615	923	12.12%	62.28%
2020	5	9	7717	803	10.41%	64.20%
2020	6	9	5917	615	10.39%	63.54%

LPTS Add-On Summary by Year, Wave

Year	Wave	Sampling Weeks	Vessels on Frame	% FHS Frame w HMS permit	Avg Vessels Sampled (Per Week)	Avg Sampling Fraction (Per Week)	Avg Response Rate (Per Week)
2019	3	4	2399	72.19%	247.75	10.33%	57.78%
2019	4	9	2485	72.66%	247.55556	9.96%	57.07%
2019	5	9	2477	70.97%	247.66667	10.00%	56.97%

LPTS Private Summary by Year, Wave

Year	Wave	Sampling Periods (2 Weeks)	Vessels on Frame	Avg Vessels Sampled (Per Period)	Avg Sampling Fraction (Per Period)	Avg Response Rate (Per Period)
2019	3	3	15335	688.33333	4.49%	64.55%
2019	4	4	15335	748.75	4.88%	61.13%
2019	5	4	14587	722.5	4.95%	65.70%

APPENDIX C - FHS Atlantic Questionnaire

Public Burden Statement - Effective 4/30/2020

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995 unless the information collection has a currently valid OMB Control Number. The approved OMB Control Number for this information collection is 0648-0709. Without this approval, we could not conduct this survey/information collection. Public reporting for this information collection is estimated to be approximately 3.5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. All responses to this information collection are voluntary. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the National Marine Fisheries Service, John Foster, NOAA Fisheries Service, 1315 East-West Hwy SSCM3 Room 12359, Silver Spring, MD 20910.

Hello, I'm calling on behalf of NOAA Fisheries Services and the For-Hire Survey. Can I please speak to name of contact? **If person sought is not available, ask if they will be available anytime this week. If yes, scheduled convenient time to call back to talk to that person, thank respondent, and terminate interview. If no, thank respondent and terminate interview.**

Are you still the captain, owner or designated representative of the [vessel name]?

If "yes", ask: Can you provide information on the activity of the [vessel name] during the last week (Monday through Sunday)?

If "yes", continue to survey description.

If "no", ask: Is someone else currently operating the [vessel name]?

If "yes", then ask: Do you know the name and telephone number of new contact?

If "yes", take name and telephone number, thank respondent and terminate interview.

If "no", denote whatever information is given and terminate interview.

The [vessel name] has been selected at random from a directory of for-hire fishing vessels to be included in this week's survey of trips. The information you provide will be used to estimate total fishing effort and catch by the for-hire sector which is essential for assessing the health of fish stocks. This data will remain confidential, and this survey is being conducted in accordance with the Privacy Act of 1974, therefore your participation is voluntary. The estimated reporting burden for this survey is approximately 3.5 minutes. **(Continue with interview)**

INTRO TWO: (for previously interviewed vessel reps)

Hello this is [interviewer name] calling on behalf of NOAA Fisheries for the For-Hire Survey. May I speak with [contact name]?

Alternate survey description for re-contacts:

The [vessel name] has been selected for this week's sample and I am calling to collect your effort information for this time period. As you know, this data will remain confidential, and this survey is being conducted in accordance with the Privacy Act of 1974, therefore your participation is voluntary. The estimated reporting burden for this survey is approximately 3.5 minutes.

(Continue with interview.)

Q1 During the last week (Monday through Sunday), how many saltwater fishing trips targeting finfish did the [vessel name] take?

Record –

If Q1=0, go to Q18.

Q2 How many of these trips were with paying passengers?

Record –

Q3 How many of these trips consisted of more than one day of fishing?

Record –

Q4 During the last week (Monday through Sunday), how many additional non-fishing trips did your boat make? Please include any trips taken for fuel, bait, or other recreational activities.

Record – If Q4>0, go to 4A.

Q4A On what days did each of these additional boat trips occur?

Record –

Now that we have information on the total number of trips taken, we would like to obtain specific information about each of these trips. We will begin with the most recent recreational fishing trip and work backwards to last Monday.

Q5 Did your boat take any saltwater fishing trips that ended on day of week (starting with Sunday)**? If "yes", obtain the total number of trips that day. Repeat this and the following questions for each day of the week. If more than one trip is made in one day, profile each trip separately for that day.**

1=Monday
2=Tuesday
3=Wednesday
4=Thursday
5=Friday
6=Saturday
7=Sunday

Q6 How many separate fishing trips did you take on [trip_date]?
Record –

Q6A Was this trip with paying passengers?
Yes –
No –

Q7 We are only interested in collecting information about passengers who actively fished by having a line in the water. Excluding captain and crew, how many people actually fished during the trip?
Record –

Q8 Did this trip return to a [State where vessel was sampled] marina, dock, or launch ramp?
Yes – Go to Q9
No – Go to Q8A

Q8A To what state did your boat return from this trip?
Record –

Q9 To what county did this trip return? **(Record FIPS code for county of trip).**
Record –

Q10 Did this trip return to a marina, dock, or launch ramp to which the public normally has access? If so, to what particular marina, dock, or launch ramp did this trip return? **(Record MRFSS 4-digit site code)**
7777=private access site
8888=unknown public access site
9999=refused site information

Q11 At what time (to the nearest half-hour) did your boat leave the dock for that trip? **(Record return time as military time)**
Record –

Q12 At what time (to the nearest half-hour) did your boat return from that trip? **(Record return time as military time)**
Record –

Q13 To the nearest half-hour, how much time was spent actively fishing with gear in the water? **(Record vessel fishing hours. If vessel fishing hours exceed 24 hours record "yes" for multi-day trip and split into individual day trips on consecutive days with equal fishing hours)**
Record –

Q14 What fishing method or methods (read all options) were used on that trip? **(Record as many options as offered)**
1=trolling

2=bottom fishing
3=casting
4=fly-fishing
5=drifting
6=chunking
7=chumming
8=other
97=don't know
99=refused

Q15 Was most of your fishing effort on that trip in the ocean, a gulf, a river, a sound, an inlet, or a bay?

1= ocean – Go to Q 15A
2= sound – Go to Q16 unless criteria for 15.1-15.6 below are met
3= river – Go to Q16 unless criteria for 15.1-15.6 below are met
4= bay – Go to Q16 unless criteria for 15.1-15.6 below are met
5= inlet or other non-ocean water body – Go to Q16

Q15.1 If (TRIP_ST=MD (24) or TRIP_ST=VA (51)) and Q15=3 or 4:
Was most of your fishing in the Chesapeake Bay (F) or a river that empties into the Chesapeake Bay?

Yes – Go to 15.1.1
No – Go to Q16

Q15.1.1 Was most of your fishing in the Potomac River (above line between Point Lookout and Smith Point?

Yes – Go to Q16
No – Go to Q16

Q15.2 If ((TRIP_ST = NY (36) and (TRIPCNTY=5 or TRIPCNTY=59 or TRIPCNTY=81 or TRIPCNTY=103 or TRIPCNTY=119)) or TRIP_ST = CT (9) or TRIP_ST=RI (44)) and Q15=2,3 or 4:
Was most of your fishing in Long Island Sound (C) or a bay or river that opens into Long Island Sound?

Yes – Go to Q16
No – Go to Q16

Q15.3 IF ((TRIP_ST = MA (25) and TRIPCNTY=5) or TRIP_ST = RI (44)) and Q15=3 or 4:
Was most of your fishing in Narragansett Bay (A) or a bay or river that opens into Narragansett Bay?

Yes – Go to Q16
No – Go to Q16

Q15.4 If (TRIP_ST = MA (25) and (TRIPCNTY=1 or TRIPCNTY=5 or TRIPCNTY=7 or TRIPCNTY=23)) and Q15=3 or 4:

Was most of your fishing in Buzzard's Bay (B) or a bay or river that opens into Buzzard's Bay?
Yes – Go to Q16
No – Go to Q16

Q15.5 IF ((TRIP_ST = NY (36) and (TRIPCNTY=47 or TRIPCNTY=81 or TRIPCNTY=85)) or (TRIP_ST = NJ (34) and (TRIPCNTY=23 or TRIPCNTY=25))) and Q15=3 or 4:
Was most of your fishing in Raritan Bay (D) or a bay or river that opens into Raritan Bay?
Yes – Go to Q16
No – Go to Q16

Q15.6 If ((TRIP_ST = NJ (34) and (TRIPCNTY=9 or TRIPCNTY=11)) or TRIP_ST=10) and Q15=3 or 4:
Was most of your fishing in Delaware Bay (E) or a bay or river that opens into Delaware Bay?
Yes – Go to Q16
No – Go to Q16

Q15A Was most of your fishing less than or greater than three miles from shore?
1=less than 3 miles
2=greater than 3 miles

Q16 Did this trip cover more than one day of fishing?
Yes – Go to Q16A
No – Go to Q17

Q16A How many days of fishing occurred on this trip?
Record –

Q17 What species were targeted on that trip? That is, when you left the dock, what species were you planning on fishing for? **(Record NMFS codes for up to two species or species groups; refer to state or regional short list of species and species groups)**

[26] Other Species
[98] Don't know/Don't remember
[99] Refused

FOLLOW-UP

Q18 Did you receive notification from us that we would contact you for this interview? **If "no", ask for correct mailing address and briefly explain that a letter will be sent prior to any later contacts and continue.**
Yes – Go to Q19
No – Record correct address. Go to Q19
Don't know – Go to Q19
Refused – Go to Q19

Q19 In case the <u>vessel name</u> is ever selected again for this survey, at what time of day would you

prefer to be called? **(Record preferred time as military time)**

Those are all of the questions that I have for you, thank you for your time and cooperation. Have a good day/evening. Goodbye.

APPENDIX D:

GULF FOR-HIRE TELEPHONE SURVEY QUESTIONNAIRE

Prior to call record vessel name, vessel number, contact name, phone number, best time, vessel state, vessel county and interviewer number. Key questions are preceded by an asterisk. All key questions must be answered to obtain a complete interview.

Hello my name is name of interviewer. I'm calling for a survey being conducted for the National Marine Fisheries Service of the U. S. Department of Commerce. Am I speaking to name of contact? **If no, ask:** Can I please speak with name of contact? **If person sought is not available, ask for convenient time to call back to talk to that person, thank respondent and terminate interview.**

SCREENING QUESTIONS: Are you still the captain, owner or designated representative of the name of vessel?

If yes, ask: Do I need to contact anyone else to obtain information on the activity of the name of vessel during the last week (Monday through Sunday) or do you have all that information on hand?
If yes, ask for name(s) and telephone number(s) of other persons, note that other persons will have to be contacted for this vessel's effort data and then continue.
If no, continue.
If no, ask: Is the name of the vessel currently being operated by someone else?
If yes, then ask: Do you know the name and telephone number of someone who operated the name of vessel during the last week (Monday through Sunday)?
If yes, take name and telephone number, thank respondent and terminate interview.
If no, thank respondent and terminate interview.
If no, note that vessel is inactive, thank respondent and terminate interview.

We're surveying for-hire boat owners and operators to collect data needed to estimate total marine recreational fishing trips by individual anglers. The name of vessel has been selected at random from a directory of for-hire boats to be included in this week's survey of trips.

I would like to ask you a few questions about trips made last week by the name of vessel. This data will remain confidential. This survey is being conducted in accordance with the Privacy Act of 1974, therefore you are not obligated to answer any question if you find it to be an intrusion of your privacy. **(Continue with interview.)**

*Q1. During the last week how many saltwater fishing trips targeting finfish did the name of vessel take with paying passengers? **Record number of recreational saltwater fishing trips with paying passengers. If '0" then skip to question 14.**

We will begin with the most recent fishing trip with paying passengers and work backwards to last Monday.

*Q2. Did your boat take any fishing trips with paying passengers that ended on day of week (starting with Sunday)? **If yes, obtain the total number of trips that day. Repeat this and the following questions for each day of the week. If more than one trip is made in one day, profile each trip separately for that day. (Record day of trip.)**
1=Monday
2=Tuesday
3=Wednesday
4=Thursday
5=Friday
6=Saturday
7=Sunday
*Q3. Was this a trip with paying passengers who chartered the boat as a group or did passengers pay as individuals to fish on the boat? **(Record fishing mode of trip.)**

6=head (passengers paid as individuals)

7=charter (passengers chartered boat as a group)
9=other

Definitions:
Charter trip: A trip with paying passengers who hired the vessel as a group.
Headboat trip: A trip with paying passengers who paid to fish as individuals.

*Q4. Excluding captain and crew, how many people fished?
1-99

*Q5. Was this trip taken from a state access site? **If no, ask:** From what state was the trip taken? **(Record state of trip.)**
01=Alabama
12=Florida
22=Louisiana
28=Mississippi
48=Texas

Q6. From what county (or parish) was this trip taken? **(Record parish or county of trip.)**
See FIPS codes in Intercept Survey Training Manual.

Q7. From what particular site did this trip originate? **(Record MRIP 4-digit site code.)**
7777=private access site
8888=unknown public access site
9999=refused site information

Q8. Was most of your fishing effort on that trip in the ocean, the gulf, a river, a sound or a bay? **If bay ask:** Was that an open or enclosed bay? **(Record area.)**
1=ocean, gulf or open bay
2=sound
3=river
4=enclosed bay
5=other

Q9. **If Q9 is ocean, gulf or open bay and state is not Florida, ask:**
Was most of your fishing less than or greater than three miles from shore? **(Record distance from shore.)**
1=less than 3 miles
2=greater than 3 miles
8=not applicable (Q8 is not 1)

If Q9 is ocean, gulf or open bay and state is West Florida, ask:
Was most of your fishing less than or greater than ten miles from shore? **(Record distance from shore.)**
3=less than 10 miles
4=greater than 10 miles
8=not applicable (Q8 is not 1)

Q10. At what time (to the nearest half-hour) did your boat leave the dock for that trip? **(Record departure time as military time.)**
0030 - 2400

Q11. At what time (to the nearest half-hour) did your boat return from that trip? **(Record return time as military time.)**
0030 - 2400

Q12. To the nearest half-hour, how much time was spent actively fishing with gear in the water? **(Record vessel fishing hours. If vessel fishing hours exceed 24 hours record yes for multi-day trip and split into individual day trips on consecutive days with equal fishing hours.)**
0.5 - 24.0

Q13. What 2 species of fish were you targeting on this for-hire fishing trip?
Select common name from drop down list (Loads ITIS code)

(Repeat Questions 2-12 until all fishing trips with paying passengers in the past week have been profiled.)

*Q14. During the last week (Monday through Sunday), did your boat take any additional dock-to-dock trips? This would include any commerical or private fishing trips, as well as any non-fishing trips. **Record total number of vessel trips (number of fishing trips with paying passengers + other dock-to-dock trips). If "0" then skip to Follow-Up questions.**

Q15. On what days did these additional boat trips occur? **Record only the day of each additional trip (mode=9) and proceed to Follow-up questions.**

FOLLOW-UP

Did you receive notification from us that you would be contacted for this interview?
If no, ask for correct mailing address and briefly explain that notification will be sent prior to any later contacts and continue.
If yes, ask: Did you choose to use the optional form to record data for the name of vessel fishing trips? **(Record form use.)**
In case the name of vessel is ever selected again for this survey, at what time of day would you prefer to be called? **(Record preferred time as military time.)**
Thank respondent and conclude interview.

* denotes key questions

Private LPTS Questionnaire

Q1. Introduction

Hello, my name is [INTERVIEWER NAME] and I'm calling from [CONTRACTOR NAME AND LOCATION]. We are interviewing marine fishermen for a study sponsored by the National Marine Fisheries Service of the U.S. Department of Commerce. Our records show that the [VESSEL NAME] has an HMS permit and is owned or operated by [RESPONDENT NAME]. May I please speak with [RESPONDENT NAME]?

[1] Respondent is available **Continue to Q2**
[2] Proxy is available (after Wed. only) **Go to Q4**
[3] Respondent/Proxy NOT available **Go to Q3**
[4] Respondent deceased/disabled **Go to Screener Q2**

Q2. Survey description

We are calling people with HMS permits to ask them a few questions about fishing trips. This study is being conducted under the authority of the Atlantic Tunas Convention Act. Your answers will be kept confidential, and data from this survey may only be released in accordance with the Privacy Act of 1974.

Q3. Callback

What day would be the best to call back? [Record day]
Who should I ask for when I call back? [Record respondent] **Go to END**

Q4. Proxy introduction (Not available on Mondays and Tuesdays)

Perhaps you can help me. We are surveying all people with HMS permits to ask a few questions about their fishing tips targeting large fish such as tunas, sharks, billfish, dolphin, amberjack or wahoo. ***This study is being conducted under the authority of the Atlantic Tunas Convention Act. Your answers will be kept confidential, and data from this survey may only be released in accordance with the Privacy Act of 1974. Do you know if the boat was used in the last two weeks to fish for any of these species?***

[1] Yes (Proxy says boat took no trips) **Continue to screener question 1**

[2] No (Proxy says boat took no trips) **Go to END**
[3] Proxy does not know; call back for captain **Return to Q3**
[4] Boat is Inactive **Go to Inactive vessel**

Q5. Confirm proxy status: This question will determine if the proxy respondent is qualified to answer the questionnaire.

Can you answer questions about fishing trips taken last week, that is Mon.-Sun., [RECALL DATES], by the [VESSEL NAME]?

[1] Yes - **Go to Screener Q1**
[2] No - **Return to Q3**

Screener question 1. Confirm the captain's name and ownership status

IF RESPONDENT: Are you the captain or owner of the [VESSEL NAME]?
IF PROXY: Is [RESPONDENT] still the captain or owner of the [VESSEL NAME]?

[1] Yes **Go to Screener Q4 (see "Note" below)**
[2] No **Continue to Screener Q2**
[3] Boat sold **Continue to Screener Q2**

Screener question 2. New owner name

Do you know the name of the owner or captain of the [VESSEL NAME]?

[1] Yes**Record new owner/captain's name - Continue.**
[2] No ***Thank respondent and Terminate.***

Screener question 3. New owner phone number

Do you know the telephone number of the owner or captain?

[1] Yes **Record new owner/captain's telephone number.** ***[2]*** No
Thank respondent and Terminate.

Screener question 4. Permit category

Our records show that the [VESSEL NAME] has an Angling category HMS permit. Is that correct?

Alternatively:

Our records show that the [VESSEL NAME] has a General category Atlantic Tunas permit. Is that correct?

[1] Yes **Continue**
[2] No **Go to Screener question 4A**
[9] DK/RF

Screener question 4A. Permit category

What category HMS permit does the vessel have?

[1] General [3] Charter/headboat
[2] Angling [9] DK/RF

Screener question 5. Do you/the captain ever sell fish like tunas or sharks caught from [VESSEL NAME]?

[1] Yes
[2] No

Screener question 6. State of principle port

Do you/the captain usually dock or launch this vessel in [STATE PORT]?

[1] Yes - **Go to SQ7** [2] No – **Continue**

Screener question 6b. Other state of principal port

In what state do you usually dock or launch this vessel?

If the respondent state of principal port is included in LPS then ***Continue.*** *If the respondent state of principal port is* ***not*** *one of the survey states for the LPS,* ***terminate the Interview.***

Screener question 7. LPS fishing

Is [VESSEL NAME] ever used to fish with rod and reel or handlines for tunas, sharks, billfish, dolphin, amberjack or wahoo?

[1] Yes **Continue to Survey Questions Q6**
[2] No **Terminate interview**

Q6. Trips - recreational fishing total

During the weeks of [RECALL DATES] how many saltwater fishing trips targeting finfish did the [VESSEL NAME] take?

[0]	None	**Go to END**
[1 - 25]	Record Number	**Go to Q7**
[99]	Refused	

Q7. Target species

For one trip: Did you target a large pelagic species such as tunas, sharks, billfish, dolphin, wahoo, amberjack, or similar offshore species on this trip? ENTER 0 IF "no". ENTER 1 IF "yes".

For more than one trip: On how many of these trips did you target a large pelagic species, such as tunas, sharks, billfish, dolphin, wahoo, amberjack, or similar offshore species?

[0]	NO	**Go to END**
[125]	YES	**Continue**

Check Box

We would like to obtain specific information about each of these trips. We will begin with the most recent recreational fishing trip and work backwards to the last Monday.

TRIP PROFILE LOOP – Begin with most recent trip and work backwards

Q8: Trip Date, beginning with the most recent trip taken.

BACKWARD THROUGH THE RECALL PERIOD [RECALL DATES].
Did your boat take any saltwater fishing trips that ended on [MOST RECENT RECALL DATE]?

[1] Yes - **Go to Q9 (start of trip profile)**
[2] No - **Continue backward through week(s) to Monday {date} by day.**
[9] Don't Know / Refused - **Continue backward through week(s) to Monday {date} by day; if respondent doesn't know or refuses the days of all trips reported in Q Go To Q, code [2] - NO,** #Reported LPS trips does not match # LPS trips in trip records! Do you want to go back and correct the # LPTS trips? 1 Yes go back to Q7 2. No – Make Sure you report the reason for this discrepancy on the Exceptions Spreadsheet code CM

Q9: Did this trip target offshore large pelagic fishes such as tuna, sharks, billfish, dolphin, amberjack or wahoo?

[1] Yes - **Continue to Q9 (LPS trip profile)**

[2] No - **Return to Q8 and continue backward through week by day.**

Q10: How many people were actively fishing?

[Record the number of people actively fishing, or record DK/RF if they don't know, or refused the question]

Q11: Did this trip return to a [STATE PORT] marina, dock, or launch ramp?

[1] Yes **Go to Q12**
[2] No **Continue to Q11b**

Q11b: To what state did your boat return from this trip?

[Record State <pull down list>] **If NOT ON LIST code NON-ATLANTIC CC AND go to Next Trip**

Q12. To what county did this trip return?

[Record County <pull down list>] Or specify other Or Refused

Q13. To what marina, dock or launch ramp did this trip return?

[Record dock <pull down list>] **Continue to Q14 or**

choose "Private Access Site" **Continue to Q13b**

or "Other Public Access Site", then record location name in the Other Specify box or Refused.

Q13a. In what city or town is this public access site located?

Q13b. After this fishing trip, did you stop at any other site, (either for fuel, ice, bait, to clean or weigh-in your catch or some other purpose) before returning to the [PRIVATE ACCESS SITE / PUBLIC ACCESS SITE LOCATIO NAME]?

[1] Yes [Record dock <pull down list>] or choose "Other Public Access Site" [2] No

Q14. Did this trip cover more than one day of fishing?

[1] Yes **Continue to Q14a**
[2] No **Go to Q15**

Q14a. How many days of fishing occurred on this trip?

[Record number of days]

Q15. At what time, to the nearest half-hour, did your boat leave the dock for that trip?

[Record time in military format]

Q16. At what time, to the nearest half-hour, did your boat return from that trip?

[Record time in military format]

Q17. To the nearest half-hour, how much time was spent actively fishing with gear in the water?

[Record time]

Q18. What fishing method or methods were used on that trip?

[Check all that apply: Trolling, Bottom Fishing, Casting, Fly-Fishing, Drifting, Chunking, Chumming, Other, DK, RF]

Q19. What species were targeted on that trip? That is, when you left the dock, what species were you planning on fishing for?

[Select species from drop down list – if any of the following are selected…]

Sharks, unidentified **Go to Q19a**
Tuna Genus **Go to Q19b**
Billfish Family **Go to Q19c**
Other large pelagic **Go to Q19d**

Q19a. Which type of shark were you fishing for?

[Shortfin Mako, Blue shark, No specific shark, Other shark, DK, RF]

Q19b. Which type of tuna were you fishing for?

[No specific type, Yellowfin Tuna, Bluefin Tuna, Bigeye Tuna, DK, RF] **If Bluefin go to Q19c, otherwise go to Q20.**

Q19c. What species or size class of tuna?

[1] No specific size class
[2] School
[3] Medium
[4] Large
[8] Don't know
[9] Refused

Q19d. Which type of Billfish were you fishing for?

[Sailfish, Blue Marlin, White Marlin, Swordfish, No specific Billfish, DK, RF]

Q19e. Please specify which "other" large pelagic species.

[Record first reported fish or group of fish]

Q20. Were you participating in a tournament on that day?

[1] Yes **Continue to Q21**
[2] No **Go to Q22**
[8] Don't know/Don't remember **Go to Q22**
[9] Refused **Go to Q22**

Q21. What was the name of the tournament?

[Record tournament name <drop down list>] if Other Name? [Record Name] DK/RF

Q22. Were you primarily using a rod and reel on this trip?

[1] Yes**Go to Q23**
[2] No **Continue to Q22a**

Q22a. What type of gear was primarily used on that trip?

[Rod and Reel] – **Go to Q23**
[Handline] – **Go to Q23**
[Harpoon] - **Go to next trip**
[Other] – **Specify, Go to Q22b**

Q22b. Is that a "rod and reel" type of fishing?
[1] Yes
[2] No – **Go to next trip**

Q23. How many lines were used on that trip?

[Record number]
Or Check DK/RF

Q23. What type of bait was used during that trip?

[1] Live [3] Artificial
[2] Dead

Q24. Did you use any other type of bait on that trip?

[1] Yes **Specify other bait used**
[2] No **Continue to Q25**

Q25. What was the name of the fishing grounds on which you did most of your fishing?

[Record response <drop down list>]
Or Specify Other Fishing Grounds OR DK/RF

Q26. How many miles was the fishing grounds from the nearest shoreline?

[Record response]
Or record check box for DK/RF

Q27. What was the average ocean depth, in feet, where you were fishing? [Record

depth either in [feet] or [fathoms] box] or record DK/RF

Q28. What was the surface water temperature in degrees Fahrenheit?

[Record temp] or record DK/RF

Q29. NOW I'D LIKE TO ASK YOU A FEW QUESTIONS ABOUT THE FISH YOU CAUGHT ON THIS TRIP; DID YOU CATCH ANY FISH?

[1] Yes **Continue to Q30**
[2] No **Go to Next Trip**
DK
RF

Q30. What type of fish did you catch?
[Record response <drop down list>] use up to 10 dropdown lists.
Or what other type of fish did you catch? [specify]

If "Tuna Genus" is selected:
30a. What type of Tuna did you catch?
[1] Bluefin tuna (then go to 30b.)
[2] Bigeye
[3] Yellowfin
[4] Other Tuna

Q30b. What size class of Bluefin tuna?

[1] Young School (< 27" CFL)
[2] School (27" – < 47 " CFL)
[3] Large School (47" - < 59" CFL)
[4] Small Medium (59" - < 73" CFL) [5] Large Medium (73" - < 81" CFL)
[6] Giant (81" or > CFL)
[8] Don't know
[9] Refused

30c. If "Billfish Family" is selected, Did you Catch White Marlin, Blue Marlin, or Roundscale Spearfish?
[1] Yes
[2] No
[3] DK/ RF

30d. If "Sharks, Unidentified" is selected, Were any of the following species of shark caught?
[1] Shortfin Mako Shark
[2] Blue Shark
[3] Sandbar Shark
[4] Dusky Shark
[5] Porbeagle
[6] Don't Know/Don't Remember
[7] Refused

If DK/ RF go to next trip.

If no Bigeye tuna, Bluefin tuna, White Marlin, Blue Marlin, Roundscale spearfish, Porbeagle, Blue Shark, Dusky Shark, Sandbar Shark, Shortfin Mako Shark , Yellowfin tuna, Albacore tuna, Skipjack tuna, Thresher shark, or Dolphin caught then GO to END.

31. For Bigeye tuna, Bluefin tuna (with size class specified), White Marlin, Blue Shark, Dusky Shark, Sandbar Shark, Blue Marlin, Roundscale spearfish, Porbeagle and Shortfin Mako Shark, Interviewer will be prompted to ask...
[1] How many___did you keep?
[2] How many___did you release alive?
[3] How many___did you release dead?

32. For Yellowfin tuna, Albacore tuna, Skipjack tuna, Thresher shark, and Dolphin, Interviewer will be prompted to ask...
[1] How many___did you keep?
[2] How many___did you release alive?

[3] How many___did you release dead?

Inactive Vessel

When will the boat be active again?
[Record month and year when vessel will resume activity] – **Go to End**

END
"Those are all of the question that I have for you, thank you for your time and cooperation. Have a good day/evening, goodbye." -*T*o be read whenever the question sequence takes the interviewer out to end.

Review of the For-Hire Survey Design Program Proposed for MRIP Certification
Jean Opsomer (Westat), Virginia Lesser (Oregon State University), Mike Brick (Westat)

April 2022

After reviewing the materials provided to us by NOAA staff, we address each of the terms of reference below.

1) Does the survey's sampling design follow a formal probability sampling protocol with known inclusion probabilities at all stages and/or phases of sampling?

Yes. As indicated in the documentation, the sampling design for FHS is stratified equal-probability random sampling, with for-hire vessels as sampling units. The strata are sub-region, state, sub-state region (applicable to Florida only, which has five sub-state regions: FL panhandle, FL peninsula, FL keys, FL southeast, and FL northeast), vessel type (charter boat or headboat), and sample week within each two-month wave. The use of implicit stratification (sorting) within the design strata is also used, a standard practice in the design of large-scale surveys.

This design follows accepted probability sampling designs.

ST1 Response: None.

2) Do the estimation methods appropriately weight the sample data to account for the sampling design and produce design-unbiased point estimates and variance estimates?

The estimator and variance estimator for the number of trips by vessels on the sampling frame are correct. It appears that the nonresponse is accounted for at the stratum level, by assuming that the responding vessels are an equal-probability sample from the stratum. This is a simple but likely sufficient approach in this case.

However, there appear to be issues with the estimator and variance estimator for the coverage adjustment for off-frame trips. This estimator is based on APAIS data, so that it needs to be weighted according to that survey's design and its variance should reflect the selection of site-days, which are the PSUs for the APAIS. While not explicitly mentioned in the FHS methodology description, applying the coverage adjustment to the on-frame estimate of trips is a product of two independent random variables, so Goodman's formula can be used to obtain the variance estimator for the product.

ST1 Response: There is no issue with the estimator and variance estimator for the number of trips by vessels. The on-frame coverage adjustment uses weighted APAIS data, and the variance of total effort is derived from Goodman. The formula for the adjustment was edited to include the APAIS weights.

3) Are appropriate methods in place to measure and/or correct for potential biases due to under-coverage, nonresponse, or response errors?

The sampling frame for the FHS is the subset of listed vessels that are active, have complete contact information and have known state and county. We will refer to this subset as the "eligible" vessels on the frame. In principle, the stratum sizes used in the estimation formulas should therefore be for this subset, and in particular, the undercoverage adjustment described above should be with respect to the subset, not the full frame. It is not clear to us whether the full frame or the eligible subset are used for these two purposes, but it would be good to explicitly state this. If the full frame is used, this assumes that the ineligible vessels are missing at random. This is reasonable but should be investigated further, at least in terms of the vessel characteristics available (e.g. vessel size). The specifics of how the ineligible vessels are handled in estimation and in the determination of the undercoverage adjustment should be stated explicitly. See comment in Item 4.

Phone attempts to reach captains were reduced but it appears that this had no impact on decreasing response rates. Figure 2 of the notes provided for this meeting shows a fairly level, and perhaps a slight increase, in response rates from 2011-2020. Quality control procedures appear to be in place to validate the telephone interviews through monitoring. We do encourage that other examinations be conducted through evaluating the paradata to examine call duration, variability of interview time across the interviewers, etc. This may help to detect any concerns on particular interviewers.

ST1 Response: Stratum sizes used in estimation include the subset of vessels that comprise the sample frame for the wave (i.e. eligible subset - these are active for-hire vessels with complete contact information and known state and county of operation). Likewise, the undercoverage adjustment is based upon the telephone survey sample frame (i.e. the telephone survey and dockside adjustment are based upon the same list of vessels). A new sample frame is created from the vessel directory for each wave based upon dockside observations and information reported by captains during the course of FHS interviews.

4) How sensitive is the accuracy of the survey to assumptions made about segments of the target population that are not covered by the survey frame? What can be done to reduce or limit that sensitivity?

Team members indicated at the Jan 6 meeting that all of the approved vessels are on the frame, and no ineligible vessels are on the frame. The approved vessels are listed in an updated directory of known for-hire vessels from Maine to Mississippi. The directory includes complete contact information, active (in at least one of the months of the wave), and therefore eligible to be selected. These vessels are listed as the stratum total used in the calculations. The process laid out appears to capture the target

population desired in drawing the sample and computing the (unadjusted) estimates of the number of trips.

However, it is not clear whether that same updated directory is used in the determination of the undercoverage adjustment, since that would in principle require matching APAIS-reported vessel identifications against a list that can change each wave. Given that the population definition is based on the updated directory, this same directory should be used for determining whether a given intercepted vessel is on the frame.

ST1 Response: The undercoverage adjustment is based upon the FHS sample frame, which is updated for each wave. APAIS interviewers use each wave's frame (not the entire Directory) to indicate if anglers intercepted were fishing aboard an on-frame FHS vessel. Information collected during the course of APAIS interviews, including vessel name and number, are matched to the FHS sample frame.

5) How sensitive is the accuracy of the survey to other potential sources of nonsampling error? What can be done to reduce or limit that sensitivity?

Nonresponse error is one source of nonsampling error. We note from Figure 2 in the Jan 6 meeting notes, FHS response rates over time have been holding steady. However, as noted with most telephone surveys, telephone response rates have been decreasing. The use of a mandatory electronic report currently being discussed in the Atlantic and Gulf may show improvement in reporting and should be carefully evaluated. If this is successful in these areas, it may be desirable to shift approaches to collect data by electronic forms rather than telephone. However, we propose overlapping the two approaches prior to shifting into a new data collection strategy in order to detect any mode effect.

Currently, the nonresponse is treated as being missing-at-random within strata. We recommend investigating whether additional variables available in the vessel list might improve the nonresponse adjustments. If no such variables are found, this could be documented as a justification for the current method.

At this time, there are no major concerns with the ways FHS accounts for nonsampling errors.

ST1 Response: None.

6) How sensitive is the survey design to potential errors in implementation? What can be done to evaluate, reduce, or limit that sensitivity?

Quality control operations for monitoring appear to be in place. However, we encourage further quality control procedures to check data entry errors. In addition, we suggest

examining the paradata collected during interviews to determine any interview or data collection issues.

Interviews may be conducted by the States or by a contractor. We see the advantage of the States, who are more familiar with their fishery and potential anglers, conducting the survey. However, we have not been provided information to assess the level of interviewer training done by either the States or the Contractors. We would expect that an interviewer manual and consistent training is in place no matter who conducts the interviews. Since this information was not available to us, we cannot comment.

Because the estimates from FHS are used to determine state-level catch, which are then aggregated and/or compared, it is important that the FHS methods be harmonized as much as possible between states. This includes questionnaires, survey modes, interviewer training, etc. If this is not the case, this can create nonsampling errors affecting state estimates differently, making aggregation/comparison substantially more difficult.

ST1 Response: Interviewers attend a classroom style training once per year and supplemental interviewer training is provided by ACCSP staff and state agency leads. A procedures manual for the survey has been developed and is provided to all interviewers. There are no alternate modes. Interviews can only be conducted by phone. Atlantic and Gulf states will also both be using the same “CATI tool” in 2022 to ask questions and enter data, with only regional differences in the wording of questions related to specific fishing areas.

Program Management Team Review and Recommendation for FHS Certification

The MRIP Program Management Team (PMT) has completed its evaluation of the For-Hire Survey (FHS) certification peer review and the Office of Science and Technology's response. Peer reviewers concluded that the FHS follows a valid, probability sampling design and had no major concerns with the way the FHS accounts for non-sampling errors. They identified a few required edits to statistical notation, which were addressed, along with additional clarifications regarding the estimation procedures. These updates were made to *Survey Designs and Estimation Methods for the For-Hire Survey and Large Pelagics Telephone Survey* (which is included in the certification package and documents the version of the FHS put forward for certification) and to MRIP's Statistical Methods Manual: *Survey Design and Statistical Methods for Estimation of Recreational Fisheries Catch and Effort* (which documents the FHS as it is currently implemented).

One key modification to the FHS estimation has been proposed. Unlike the previous version of the FHS, which relied on an opportunistic, dockside non-probability sampling component to account for misreporting, the new method removes this component and uses statistical best practices and quality checks to identify reporting errors. Developing and implementing a new and improved sampling method to monitor misreporting is cost prohibitive, particularly given the likelihood that the FHS sample frame will be shrinking in future years as the various mandatory reporting programs for federally permitted vessels on the Atlantic and Gulf Coasts are certified. Unlike incomplete census-based designs (e.g., capture-recapture methods), probability-based designs, such as the FHS, do not require an independent, validation survey component to produce valid estimates. The funding previously used for the FHS dockside sampling component can be reallocated to evaluate non-sampling errors, such as reporting error, or increase sample sizes for the Access Point Angler Intercept Survey, which will arguably have broader, positive impacts on MRIP data quality.

The PMT agrees with the proposed modifications to the FHS and recommends its certification. The PMT also recommends re-estimation of the historical time series without the reporting error adjustment be included in a Transition Plan for this survey, and for continued research into possible effects of non-sampling error on the FHS.

Katherine Papacostas

MRIP Executive Steering Committee Meeting

Gordon Colvin Mon, Nov 7, 2022 at 4:46 PM
To: Richard Cody, John Foster, Katherine Papacostas, Rob Andrews
Cc: Lauren Dolinger Few, Madison Schwaab, Dave Bard, Evan Howell

Richard, Katherine, John, Rob: The period for ESC comment on the FHS Certification Decision Memo has closed, and we received two responses. One from Kelly Denit expressing no objection and the communication from Dave Donaldson forwarded herewith.

Dave's comment addresses the process but does not object to certifying the FHS. I understand that we are continuing to communicate with Dave about his process comments and about how we will work with his State members going forward.

Accordingly, I believe we can determine the certification of the FHS as ESC-cleared and proceed to final ST clearance and transmission to Cisco for signature.

-Gordon
---------- Forwarded message ---------
From: **Donaldson, Dave**
Date: Tue, Oct 25, 2022 at 2:34 PM
Subject: RE: MRIP Executive Steering Committee Meeting
To: Gordon Colvin, Evan Howell Cc: Bob Beal

Gordon and Evan,

I do not have any objections to the proposed MRIP Certification for the For Hire Survey. I believe the proposed changes moves the FHS forward and makes it a better survey and removes unnecessary activities. However, I wish the Commission and Gulf states had been more involved in the certification process. In my mind, it makes perfect sense to have the agencies involved in the coordination, administration and operation of the survey in the Gulf of Mexico be included in this process. It is my understanding that the Commission and state staff asked to be involved but apparently did not occur. It is frustrating that NOAA Fisheries states that the Commission and Gulf states are “partners” but then they are not included in decisions that affect the activities they are coordinating, administering and operating.

Thanks for the opportunity to comment and look forward to our continued collaboration.

Dave

From: Gordon Colvin
Sent: Monday, October 24, 2022 2:18 PM
To: Evan Howell; Camille Jones; Bob Beal; Russell Dunn; Kelly Denit; Clay Porch; Donaldson, Dave Kellie Ralston; Miguel Rolon; Kurt Iverson; Kitty Simonds; Barry Thom; David Detlor
Cc: Joshua DeMello; Chris Wheaton; Jason Edwards; Graciela Garcia-Moliner; Richard Cody;

John Foster; Lauren Dolinger Few; Madison Schwaab; Dave Bard; Rob Andrews; Katherine Papacostas; Michael Ruccio; Chris Wright
Subject: Re: MRIP Executive Steering Committee Meeting

Good afternoon, MRIP Executive Steering Committee Members and Participants: We have several items for you today:

[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]

NOAA Fisheries Transition Plan for the For-Hire Survey

Draft Outline[1]

8/5/2022

Considerations for a comprehensive transition to for-hire data collection improvements

This plan focuses on transitioning to the use of data derived from the certified For-Hire Survey methodology in stock assessments and management applications, but the timeline for these changes are not yet determined due to several considerations. Alongside the For-Hire Survey, a suite of mandatory recreational for-hire logbook programs are emerging on the Atlantic and Gulf coasts, including the Southeast For-Hire Integrated Electronic Reporting Program, the Greater Atlantic Regional Fisheries Office's electronic Vessel Trip Reports, and the Atlantic Coastal Cooperative Statistics Program's electronic logbook program. Transitioning to the use of data from each of these different programs may create multiple disruptions to assessments and management processes. To consolidate these disruptions, the agency may find it preferable to implement a single for-hire transition plan to coordinate multiple program changes. However, numerous unknowns make the current timeline for a consolidated for-hire transition plan uncertain, including:

- Specific timelines for these additional programs to be documented, peer reviewed and certified.
- How best to reconcile differences in methodology and coverage across the multiple mandatory reporting programs (e.g., lack of coverage for non-federally permitted vessels and gaps in headboat coverage across some of these programs).
- The funding for needed research to develop calibration methods for these programs.
    - Usable years of overlap between FHS and SEFHIER for benchmarking and calibration.
    - Usable years of overlap between FHS and ACCSP logbooks for benchmarking and calibration.
- An understanding of the long-term feasibility of large-scale mandatory reporting
    - For example, enforcement capabilities to ensure sufficient compliance rates, and potential legal challenges to the various mandatory reporting programs.
- Calibration and integration methods to be used for overlapping programs.
- Changes to the FHS scope once these mandatory programs are ready to be used in assessment and management applications.

Given these uncertainties, it may be worth progressing on the FHS transition alone rather than consolidating it with these other transitions, so as to not indefinitely delay data collection improvements. In this case, an alternative option to a consolidated for-hire transition plan could be to coordinate these transitions more closely with NOAA Fisheries' stock assessment cycles. For example, FHS time series re-estimation could be completed in time for the next cycle, and

[1] This outline is subject to change and is intended to serve as a starting point for discussions with state and regional partners in executing this transition.

then as the rest of these programs move through certification, subsequent transitions can be made in alignment with subsequent cycles.

I. Executive Summary

A. TBD.

II. Introduction and Purpose

A. Purpose: Describe the process and timeline for transitioning to the use of the new For-Hire Survey methodology for assessments and management.

B. Need for a For-Hire Survey Transition Plan

1. Change in estimation methodology of the certified version of the survey.

C. Role of the Transition Team (Gulf and Atlantic Subgroups)

1. The Atlantic and Gulf Transition Team Subgroups will play an important role in coordinating consistent approaches and methods for the council, interstate commission, and NOAA Fisheries to apply to recreational catch estimates derived from surveys for:
    a) Determining the status of exploited stocks;
    b) Setting annual catch limits;
    c) Monitoring catch against catch limits;
    d) Informing potential needs for accountability measures; and
    e) Conducting analyses leading to the adoption of recreational fishing regulations.

III. Description of Approach and Timeline

A. Approach:

1. The standard transition approach, as described in Procedural Directive 04-114 includes:
    a) Benchmarking
        (1) This step is not required for the FHS transition because the primary change from the prior version to the certified version is in the estimation methods, rather than in the survey design. Since the survey design itself has not changed, we can re-estimate the time series by producing estimates using the new estimation method.
    b) Development of calibration methods
        (1) **For the 2003-present time series:** can skip this step and directly re-estimate using the estimation methods of the new FHS (new calibration methods not needed).
        (2) **For the 1981-2003 time series**: complete a CHTS-FHS calibration.
            (a) Methodology developed by the SEFSC (see Detloff and Matter 2019) will be peer reviewed, edited as needed based on the outcome, and implemented

by the Office of Science and Technology on the historical CHTS time series.

c) **Re-estimation of the historical time series**
d) **Incorporate new estimates into stock assessments and economic analyses**
e) **Incorporate new estimates and ACLs into management**

B. General Timeline:
    1. For calibration and re-estimation: approximately two years
        a) Finalize and commission a peer review of Detloff and Matter 2019 CHTS-FHS calibration methods. Edit these methods as needed.
        b) Re-estimate and apply the calibration method.
    2. For incorporating the re-estimated time series into assessments and management: TBD.

IV. Potential Stock Assessment Impacts and Schedule

A. Exact impacts and schedule unknown at this stage.

V. Potential Management Impacts and Schedule

A. Exact impacts and schedule unknown at this stage.

VI. Identification of Unknowns

A. See considerations above.

VII. Lessons Learned

A. From past transitions:
    1. Transitioning multiple programs at once can minimize disruptions to science and management.
    2. Survey administrators need to coordinate survey goals to ensure the suite of surveys to be used will meet assessment and management needs.
    3. Transitions require meticulous planning, coordination and regular communication/information sharing across all involved parties to be successful.

VIII. Appendices

A. TBD.