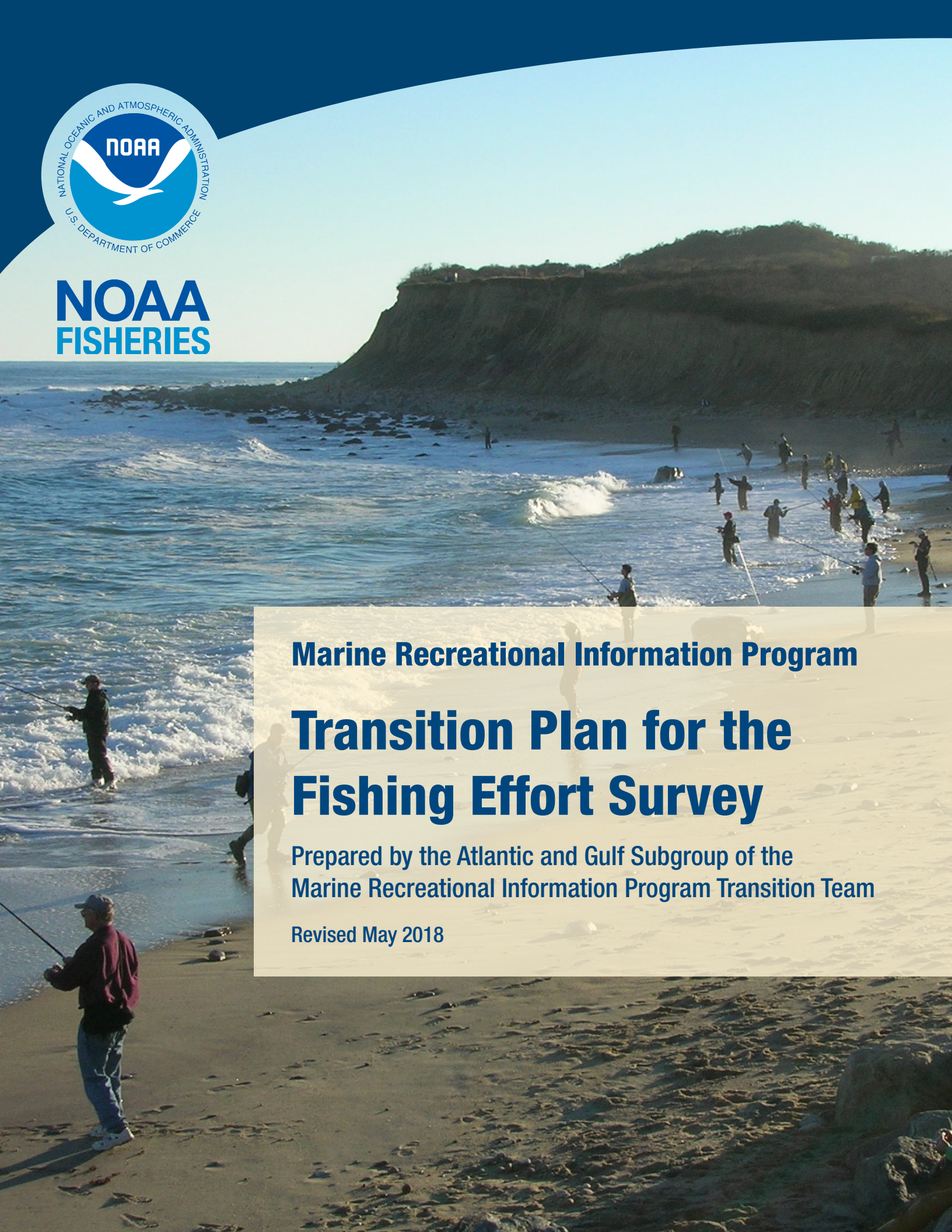




**NOAA
FISHERIES**



Marine Recreational Information Program

Transition Plan for the Fishing Effort Survey

**Prepared by the Atlantic and Gulf Subgroup of the
Marine Recreational Information Program Transition Team**

Revised May 2018



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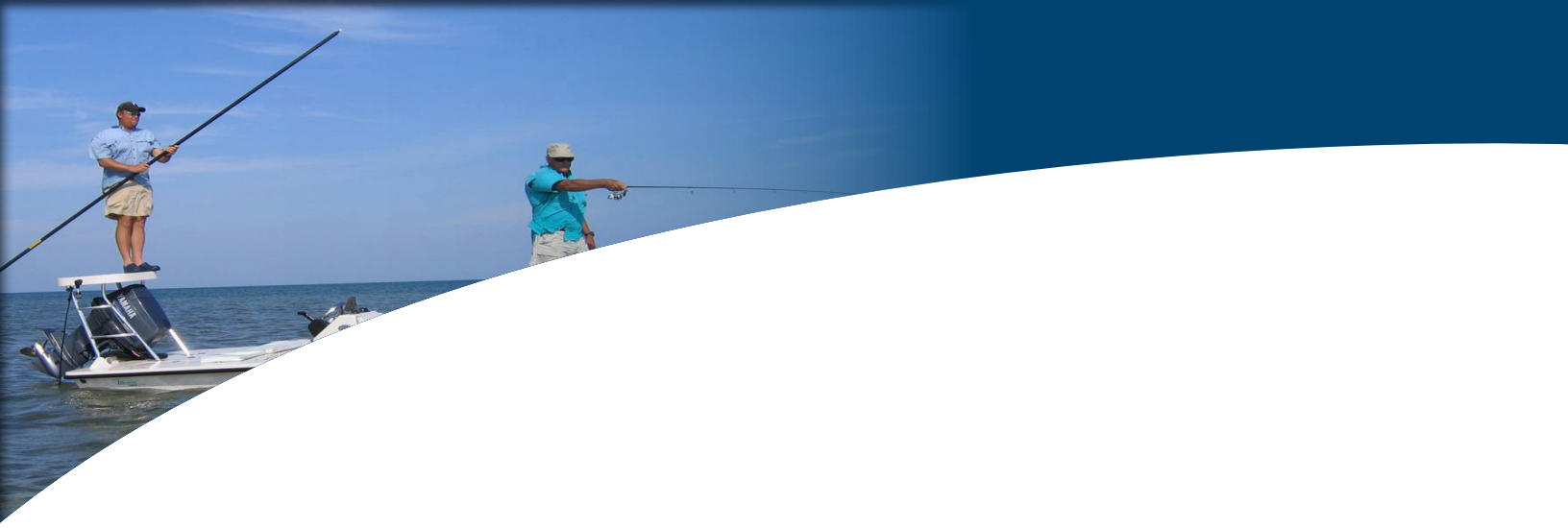


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I. Executive Summary

In this revised plan, the Atlantic and Gulf coast Subgroup (henceforth, Subgroup) of the Marine Recreational Information Program's (MRIP) Transition Team details a comprehensive plan timeline for transitioning from the current Coastal Household Telephone Survey (CHTS), conducted on the Atlantic coast and in the Gulf of Mexico, to a new mail survey design for estimating marine recreational shore and private boat fishing effort, known as the Fishing Effort Survey (FES). All members of the Subgroup agree the timeline presented in this document is the most efficient and scientifically sound approach to implement the FES.

From 2008 to 2015, MRIP conducted six pilot studies to determine the most accurate and efficient survey to estimate marine recreational fishing effort on the Atlantic and Gulf coasts. The most recent study, conducted in four states (Massachusetts, New York, North Carolina, and Florida) in 2012-2013, compared a new mail survey design for estimating recreational shore and private boat fishing effort with the CHTS design that has been used on the Atlantic coast and in the Gulf of Mexico since 1979. MRIP subjected the final report from the pilot project to external peer review in 2014 and certified the new survey design in February 2015 as a suitable replacement for the CHTS. The FES is much less susceptible to potential sources of bias than the CHTS. The new mail survey design reaches more anglers, achieves higher response rates, and is less prone to possible recall errors. The pilot project results indicated that FES estimates are on average 2.6 times higher than CHTS estimates for private boat fishing and 6.1 times higher for shore fishing. Because there are consistent differences in the results of the two sur-

veys, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) recognized the FES could not be implemented immediately as a replacement for the CHTS, and a well-thought-out transition plan was needed to ensure that the phase-in of the FES:

- Is appropriately integrated into ongoing stock assessments and fisheries management actions in a way that minimizes disruptions to these processes, which are based on input from multiple data sources over lengthy time series;
- Creates a replicable process for implementing new or improved scientific methods into fisheries science, stock assessment, and management;
- Supports the Recreational Fisheries Policy goals and guiding principles to foster, support, and enhance a broadly accessible and diverse array of sustainable saltwater recreational fisheries and builds stakeholder support, understanding, and engagement in implementing the new survey; and
- Advances the mission of NOAA Fisheries to ensure the sustainability of our nation's living marine resources.

In 2014, MRIP formed a Transition Team composed of representatives from NOAA Fisheries, the regional fishery management councils, the interstate marine fisheries commissions, and several state agencies to develop appropriate plans for transitioning from legacy survey designs to new, improved survey designs. A subset of the Transition Team representing the Atlantic coast and the Gulf of Mexico, or Subgroup, was formed to consider different timelines for the number of years of side-by-side benchmarking required before catch estimates based on the FES would be used for manage-

ment decisions and the CHTS could be terminated. After reviewing the pros and cons of alternatives, the Subgroup recommended the three-year benchmarking timeline described in this Transition Plan and approved by NOAA Fisheries leadership.

The initial Transition Plan called for the development and application of a calibration model to revise historical catch statistics after the second year. However, in early 2017 the Subgroup pushed back implementation to 2018. With the revised timeline, new estimates will be incorporated into stock assessments after mid-2018 using calibrations of historical landings, and setting of new Annual Catch Limits (ACLs) in 2019 for at least some stocks (See [Appendix 1](#)). The Plan does not allow for any extension of the benchmarking beyond three years, so the necessary changes in stock assessment schedules can be set.

This revised Transition Plan outlines the necessary steps and activities to ensure a smooth transition to the new survey method, while taking the necessary time and effort to properly incorporate new estimates into the science and management processes. During the transition period, fishery management agencies will continue to use analyses based on the CHTS data as the “best available” science to effectively manage the health of fish stocks and marine ecosystems.

II. Introduction and Purpose

The purpose of this document is to: 1) describe the timeline for transitioning from catch estimates based on the current CHTS to catch estimates based on the new FES; and 2) stress the importance of a planned step-by-step process for transitioning from the use of catch statistics produced by a legacy survey design to the use of catch statistics produced by a new, improved survey design.

Introduction

For more than a decade, MRIP has been developing, testing, and evaluating ways to improve the survey designs used to monitor fishing effort and catch in marine recreational fisheries. The goal has been to provide new methods that are less prone to possible sources of

bias and can be adapted for use with increased sampling to provide greater statistical precision in estimates of recreational catches, as well as desired levels of temporal and geographic resolution as additional resources become available.

Immediate implementation of any new survey design is likely to cause a disruption to fishery management processes for at least some stocks because cumulative catch estimates based on the new design may not be comparable to the current ACLs. Fish stock assessments and the ACLs set based on them rely heavily on accurate time series of both commercial and recreational fishery catch statistics. The statistics provided for recreational fisheries must be comparable across the time series to ensure accurate accounting of fishing mortality each year and accurate monitoring of year-to-year trends in the fishery. The stock assessments used to set current ACLs incorporated the time series of recreational fishery catch statistics produced by our legacy survey designs, which include the CHTS.

Because new survey designs are likely to produce consistently different statistical estimates than the legacy designs they replace, we should expect that catch estimates based on new designs will not immediately be the “best available” for use in making fishery management decisions. It is necessary to continue use of the legacy design for catch estimates until continuity is established with data sets generated by the new survey design.

Role of Transition Team

In response to recreational fishing survey design improvements and a recognized need to appropriately transition from current to new surveys, an MRIP Transition Team was formed to develop and recommend standardized processes for transitioning from historical estimates to estimates derived from improved sampling and estimation designs. The Transition Team comprises representatives from NOAA Fisheries, the regional fishery management councils, the interstate marine fisheries commissions, and several state agencies. In order for a new survey method to be implemented, historical catch statistics would first need to be converted into the same ‘currency’ as the new estimates. MRIP charged the Transition Team with the planning

and execution of appropriate transition plans to ensure this happens. It was critical to establish processes that will enable scientists and fishery managers to make “apples to apples” comparisons between new and historical catch statistics, providing a framework that decision-makers can use for integrating new data into science and management activities at the regional and state level. The team is playing an important role in coordinating consistent approaches and methods for councils, interstate commissions, and NOAA Fisheries regions to apply to recreational catch estimates derived from new or improved survey designs for:

- Determining the status of exploited stocks.
- Setting annual catch limits.
- Monitoring catch against catch limits.
- Assessing the need for and selection of accountability measures.
- Conducting analyses leading to the adoption of recreational fishing regulations.

General Transition Approach

There are several steps that must be taken before estimates based on any new design can be used effectively in the management process.

- 1. Benchmarking:** The newly designed survey should be conducted side-by-side with the legacy survey to allow measurement and evaluation of consistent differences in the statistical estimates produced. During this benchmarking period, statistical estimates produced by the legacy design are the “best available” for use in monitoring catches relative to ACLs and making management decisions.
- 2. Calibration model development:** Consistent differences between new design and legacy design estimates should be evaluated to determine possible sources of bias in the legacy design to explain those differences. In addition, literature research should be conducted to assess how biases identified in the legacy design would most likely have changed over time. Based on the information gained, one or more calibration models should be developed and evaluated for possible use in correcting past catch statistics. Alternative models should be considered and one should be selected and defended as the

most appropriate, validated by an external peer review.

- 3. Re-estimation of historical catch statistics:**

Once a calibration model has been proposed, peer reviewed, and approved, the model should be used to generate a corrected time series of recreational catch statistics. The revised time series should immediately be made available to stock assessment scientists and fishery managers.

- 4. Incorporation of new estimates into stock assessments:**

The revised catch statistics should be incorporated into stock assessments as soon as possible to provide the most accurate assessments of stock status and provide new ACLs for use in fisheries management. Stocks with very substantial mortality levels due to recreational fishing (high proportion of total mortality relative to that caused by commercial fishing) should be identified as “key stocks” and prioritized for assessment scheduling. Depending on the magnitude of the estimation changes and potential disruption of the management process, assessments scheduled for key stocks may have to be moved to earlier dates while those scheduled for non-key stocks are moved to later dates.

- 5. Incorporation of new estimates and ACLs into management actions:**

Once revised catch statistics and new assessment results become available, management should begin to use both for decision making as soon as possible. If revised statistics are available but new assessments are not, then managers may need to continue using the statistics based on the legacy design until new assessment results are available. In years when the legacy design is no longer being conducted, the approved calibration model would be used to convert catch estimates based on the new design into estimates that are compatible with the legacy design for use in management.

New Fishing Effort Survey

From September 2012 through December 2013, MRIP conducted a pilot study in Massachusetts, New York, North Carolina, and Florida that compared a new mail survey design for estimating recreational shore and private boat fishing effort with the CHTS design that

had been used on the Atlantic coast and in the Gulf of Mexico since 1979. MRIP subjected the final report from the pilot project to external peer review in 2014 and certified the Fishing Effort Survey design in February 2015 as a suitable replacement for the CHTS. The FES is much less susceptible to potential sources of bias than the CHTS. It can reach more anglers, can achieve higher response rates, and is less prone to possible recall errors.

The FES design is a single-phase, dual-frame, self-administered mail survey. The two frames used for sampling coastal state residents are: 1) the U.S. Postal Service (USPS) Delivery Sequence File, which includes all residential addresses serviced by the USPS; and 2) the list of mailing addresses provided by licensed or registered anglers that is derived from the MRIP National Saltwater Angler Registry (NSAR). To improve survey efficiency, the design matches samples of USPS addresses to the list of NSAR addresses. Matching addresses are sampled at a higher rate and the resultant data are appropriately weighted. The pilot project results indicated the mail survey estimates for private boat fishing are 2.6 times higher than CHTS estimates and 6.1 times higher for shore fishing. More detailed information comparing the FES to the CHTS can be found on the [NOAA Fisheries website](#).

Need for FES Transition Plan

Because there were consistent differences in the results of the two surveys, NOAA Fisheries determined that the FES should not be implemented immediately as a replacement for the CHTS. A well-thought-out Transition Plan ensures the FES is appropriately phased in with minimum disruption to stock assessment and fisheries management processes. Research studies continue in parallel with this transition process to better understand and explain differences between the simultaneous estimates produced by the FES and the CHTS. Stakeholders will want to know why catch estimates are being revised and will need a clear explanation of why the new numbers are more accurate than the ones replaced.

To develop a Transition Plan for implementation of the FES on the Atlantic and Gulf of Mexico (Gulf) coasts,

the Subgroup met weekly, discussing all options for a smooth transition and incorporation of new estimates into the stock assessment and management processes. This plan provides a description of the potential methods to be used to:

- Compare legacy estimates to estimates produced by using the new FES in a statistically robust manner.
- Determine when calibration or other means of linking legacy data sets with the new FES estimates is feasible and necessary, and identify the requirements and methods for making such linkages.
- Minimize disruptions to stock assessments, catch monitoring, and management regulations, and facilitate decisions on when and how implementation of the FES is introduced.

Transition Planning and Best Scientific Information Available

The Magnuson-Stevens Fisheries Conservation and Management Act is the principal law governing marine fisheries in the U.S., and it includes ten National Standards to guide fishery conservation and management. One of these standards, referred to as National Standard 2, guides scientific integrity and states that “conservation and management measures shall be based upon the best scientific information available.” The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2007 added provisions to improve the use of science in decision-making. One of the revisions specified that the Secretary of Commerce and councils must establish a peer review process for scientific information used to advise councils on the conservation and management of fisheries.

Catch estimates based on the new FES design will only be the “best available” for management use after historical catch estimates have been appropriately adjusted to the new design and incorporated into stock assessments and the setting of management measures. Until historic catch data are adjusted to be compatible with the FES and results incorporated into ACLs and other management reference points, estimates based on the CHTS will continue to be the “best available.”

III. Fishing Effort Survey Transition Timeline

The Subgroup determined that three years of benchmarking was needed for the transition from the CHTS to the FES. The timeline covers the benchmarking and calibration of historical catch estimates and includes some detail on the stock assessment and management processes that must follow (See Figure 1). However, when a preponderance of additional information becomes available, the Subgroup will revise their recommendations/decisions on the scheduling of those processes by the appropriate fishery management agencies. This Transition Plan for the FES is a living document and will be updated as needed.

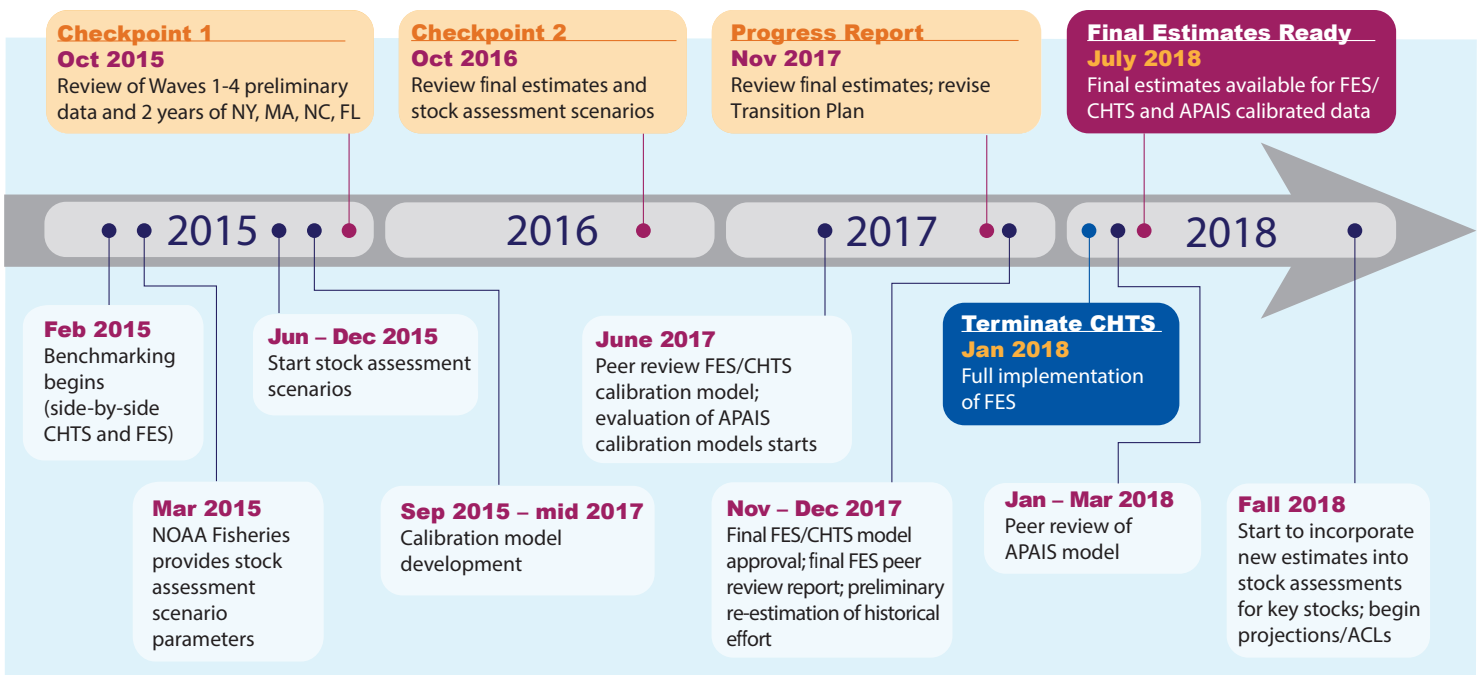
With this approach, the FES ran side-by-side with the CHTS from 2015 to 2017, with full use of FES estimates and potential termination of the CHTS in 2017.

For the first two years of side-by-side benchmarking, NOAA Fisheries scientists worked to develop a model for calibrating the two sets of estimates. In mid-2017, calibrated historical time series estimates were scheduled to be available for incorporating into stock assessments and setting ACLs for key stocks. However, the peer review of the FES model was delayed. In early 2017, the Subgroup determined that implementation of the calibration of historical catch estimates from the three-year benchmarking would begin in mid-2018 instead of mid-2017. In addition, the timing of the 2017 evaluation of the Access Point Angler Intercept Survey (APAIS) calibration models was also delayed, which, at the time of this Plan, would tentatively have those changes also available by mid-2018. Given these two factors, members thought that having to revise estimates multiple times in such a short period time would be too disruptive for management, and they preferred to make any changes at one time. Therefore, the Subgroup has revised the Plan and timeline.



Timeline for the Transition from the Coastal Household Telephone Survey (CHTS) to the Fishing Effort Survey (FES)

Updated January 2018



FES Transition Timeline

- **February 2015: Benchmarking (side-by-side conduct of FES and CHTS)** began on February 20, 2015 and continued for three full years (2015-2017).
- **June 2015–December 2015: Stock assessment scenarios developed.** NOAA Fisheries/Science and Technology worked with the Northeast Fisheries Science Center and Southeast Fisheries Science Center to test the possible effects of different calibration scenarios on assessments for four key stocks each in the northeast and southeast regions.
 - Science and Technology staff provided three alternative models for hind-casting how differences between CHTS and FES estimates may have changed between 1981 and the present. These models were based on simple assumptions of how several factors causing differences either stayed the same or changed.
 - Staff from the science centers used these models in combination with different assumptions made regarding the magnitude of current differences between CHTS and FES estimates at the sub-regional level to create a number of revised time series of catches for the selected stocks. The effects of incorporating different revised time series into assessments were then tested to get some idea of the potential range of possible outcomes.
 - **COMPLETED:** October 28, 2016 (delayed from original December 2015 target).
- **September 2015–mid-2017: Calibration FES model development.**
 - NOAA Fisheries/ST staff began developing an appropriate calibration model for re-estimating recreational catch statistics. While fine-tuning of the model is still in progress (based on the peer review recommendations), the fundamental design was completed in June 2017.
 - The MRIP Transition Team FES Calibration Model Webinar was held for the Subgroup on May 26, 2017.
- **October 2015: CHECKPOINT 1**—The Transition Team and NOAA Fisheries reviewed preliminary side-by-side estimates for January–August 2015.
 - NOAA Fisheries/ST prepared a report comparing effort estimates among states for January-August, as well as comparing the 2015 estimates for Massachusetts, New York, North Carolina, and Florida to estimates from the 2012/2013 FES pilot study, to assess inter/intra-state variation and magnitude of difference between the CHTS and FES.
 - The Transition Team and NOAA Fisheries used this checkpoint as an initial chance to look at the potential impacts of the new survey methodology and to start planning accordingly.
- **October 2016: CHECKPOINT 2**—Final estimates from the 2015 side-by-side testing of the CHTS and FES were made available.
 - The Transition Team and NOAA Fisheries reviewed the final estimates from 2015 and continued to assess the potential impacts of the new estimates and prepare accordingly.
 - At this point, there were two years of July-December FES data for Massachusetts, New York, North Carolina, and Florida (the four 2012/2013 FES pilot study states) for comparison.
 - A **Progress Report** was developed to provide an update on the status of the transition and a review of final 2015 effort estimate comparisons of the FES and CHTS, and to review any issues that may have arisen during the first year of benchmarking. Completed October 28, 2016.
 - A **Scenarios Report** was developed to assess the hypothetical stock assessment scenarios, and sought to identify any potential technical complications that would delay the transition to the FES. Completed October 28, 2016.

- **June 2017: Peer Review of the FES calibration model.**
 - NOAA Fisheries coordinated a [Peer Review Workshop](#) on June 27-29, 2017. The Team decided on a dual independent peer review process with a Center for Independent Experts panel and reviewers from the technical bodies (e.g., Scientific and Statistical Committees) from regional councils and commissions.
 - The external peer review of the calibration model took an additional 2-3 months to complete. (It was initially planned to be completed by March 2017.)
 - The peer review occurred separately from a data review workshop and addressed only the model itself, not the application. The application of the calibration model will be reviewed at one or more data review workshops conducted for planned stock assessments (updates or benchmarks).
 - Reports completed:
 - Peer Reviews, September 2017.
 - Peer Review Chair's Summary Report, December 2017.
 - Response to Peer Review Comments, expected July 1, 2018.
 - Calibration Methodology Report, expected July 1, 2018.
- **May–June 2017: A Progress Report** was developed to provide an update on the status of the transition, review final effort estimate comparisons of the FES and CHTS, and to review any issues that may have arisen during the second year of benchmarking.
 - The Transition Team was asked to provide comments on draft Progress Report in October 2017.
 - Report completed in November 2017.
- **May 2017–April 2018: Management and stock assessment preparations** were originally scheduled for calibration in 2017, but the team recommended that this be done in 2018 in order to incorporate both the final FES calibration and the final APAIS calibration. In the interim, MRIP and Subgroup members have been providing status updates to management.
 - Briefings with councils/commissions and communication outreach.
- **June–December 2017: Evaluation of the APAIS calibration models.**
 - The MRIP consultants submitted their evaluation of the three models and their recommendation of which model will work best.
- **Winter 2017: Preparation for calibration**—Preliminary calibrated statistics for the 1982–2016 time series estimates from the 2015–2016 side-by-side testing of the CHTS and FES will be available.
 - The Transition Team and NOAA Fisheries decided not to review and wait until July 2018.
- **January 2018: Side-by-side benchmarking was terminated** after final November–December 2017 data collection.
- **March 2018: Peer review of the APAIS recommended model.**
 - NOAA Fisheries coordinated a Peer Review Workshop, similar to the FES peer review. The Team decided on a dual independent peer review process with a Center for Independent Experts panel and reviewers from the technical bodies (e.g., Scientific and Statistical Committees) from regional councils and commissions.

- **May–June 2018: Apply the peer reviewed calibration models.**
 - After the final 2017 estimates are available, ST staff will produce revised catch and effort statistics for the entire time series (1982-2017). The calibration is based on the combined FES/CHTS benchmarking comparison and the APAIS model outputs.

- **July–November 2018: Begin incorporation of new estimates into stock assessments.**
 - The new calibrated catch estimates will begin to be incorporated into key stock assessments.
 - The Subgroup ranked all stocks according to both percentage of recreational catch and regional importance. Only a selected number of the top-ranked stocks will be considered “key” stocks.
 - Based on staff availability and resources, as many key stocks as possible will be re-assessed at this time.
 - Assessment updates, where possible, will: 1) not take into account any other new factors; 2) not review the FES itself; and 3) produce new results as expeditiously as possible.
 - The purpose is to adequately prepare for what could potentially be large changes in assessment results, even in terms of status determinations and rebuilding rates.

- **November 2018: Begin incorporation of new estimates and ACLs into management actions.**
 - Assessment updates will be used to set ACLs for 2018 and beyond in FES currency.
 - Projections of catches in 2018 and beyond will be based on revised historical catch statistics.
 - FES-based catch statistics will be used for monitoring of catches in 2018 and beyond, where they have been incorporated into stock assessments.
 - FES-based catch statistics will be converted into CHTS-based statistics for use in management of stocks for which the 2018+ ACLs are based on older assessments that do not incorporate FES data. Such statistics would be estimated by applying a reverse calibration to FES estimates.

IV. Potential Stock Assessment Impacts and Schedule

As mentioned in the previous section, starting in mid-2015, staff at the Northeast Fisheries Science Center (NEFSC) and Southeast Fisheries Science Center (SEFSC) conducted preliminary evaluations of the effects of hypothetical FES:CHTS calibration scenarios on the outcomes of the assessments for several key stocks in each region. This exercise helped to identify any potential technical complications as well as any implications for management. This in turn helped to inform the rate at which the remaining assessments can be updated and the level of review that may be warranted.

The Subgroup suggested using relatively simple FES:CHTS calibration scenarios based on inferred temporal changes in coverage by the CHTS and various magnitudes of current estimation differences based on the 2012/2013 FES pilot study. They also pointed out that the time series of adjusted catches should be extended as far back in time as possible, as there could be significantly different effects on the stock assessments if the CHTS effectiveness was constant or trended over time (e.g., owing to increased cell phone usage in recent years).

For the hypothetical stock assessment scenarios, the science centers evaluated different ways that historical catch estimates might be revised and incorporated into stock assessments, and whether the potential changes would be significant enough to either modify the Transition Plan timeline or indicate the need for unplanned benchmark assessments. The NEFSC ran stock assessment scenarios on bluefish, Gulf of Maine Atlantic cod, scup, and summer flounder. The SEFSC ran stock assessment scenarios on four species in the Gulf of Mexico: red snapper, red grouper, gray triggerfish, and vermillion snapper. Final results indicated that a change in timeline is not needed, no benchmark assessments would be needed, and that the Transition Plan can move forward as planned.

Overall, the costs and timing of revised stock assessments will depend on 1) the magnitude of changes

and complexity of developing a temporally varying calibration model; 2) technical details of incorporating revised estimates into stock assessment models; 3) availability of resources to focus only on this effort; 4) the number of species to be assessed; and 5) the regional review processes. It is likely that not all stocks may be updated easily and there is the need to prioritize assessments ([Appendix 1](#)). Depending on the complexity, it may take two years or longer to run assessments. Additionally, there may be a regional split in the timeline due to differing assessment processes in each region.

Revised catch statistics will be ready for use in stock assessments by July 2018. If priority stocks are to be assessed first, the impacts of a gradual assessment schedule must be clearly communicated. Some stocks will be managed under the lower estimates (possibly with retrospective adjustments) while others will be at the higher, new FES estimates.

The Subgroup developed preliminary recommendations for stock assessment priorities. The priority rankings combine input from the management and science subgroups and are intended to be used for future planning by the fishery management bodies and regional stock assessment processes. A table of the management and stock assessment schedule of key stocks can be found in [Appendix 2](#).

V. Potential Management Impacts and Schedule

The potential management impacts in the short term and long term are likely to be quite substantial given current management schedules for both federal and commission managed stocks with a recreational fishing component. Given the potential scheduling issues and increased staff workload, the Subgroup concluded that the stocks with the largest recreational catch component should be assessed first, followed by other identified stocks based on their ranking, and recommends addressing as many stocks as possible. Additionally, developing management schedules will be difficult and may vary within and among regions, with some stocks being more heavily impacted than others.

The user group and public perceptions of MRIP and any changes that may result from the revised recreational fishing effort estimates will be substantial, with some constituents having increased negative feelings regarding additional changes (i.e., the perception already exists among some that current MRIP estimates are unrealistically high). It cannot be easily determined which is more likely, the pressure to incorporate estimates sooner rather than later or accepting that taking longer would ensure a more stable calibration. A clear communications strategy is vital to the success of the planned transition. A comprehensive communications plan has been developed and a summary is provided in [Appendix 3](#).

With the current schedule, the time for making decisions on setting acceptable biological catches (ABCs) and ACLs for stocks affected by the transition and making potential allocation adjustments will need to be much shorter than the typical process. The transition timeline for management is abbreviated and optimistic, so there is no room for delay or to work through unknown issues that may arise. For fishery management councils it takes approximately one year to implement ACLs based on new assessment results; however, there have been a few occasions when this has occurred mid-year. For commissions, their management cycle could allow for almost immediate change to their stocks' quotas and they have the ability to modify mid-year.

A critical issue that must be anticipated is that even if an assessment with newer, higher recreational catch data produces higher ABCs, in an allocated fishery part of the increase will go to the recreational sector and part of the increase will go to the commercial sector. Thus, without allocation adjustments, recreational restrictions might be triggered even if ABCs are increased. Some stock assessments may trigger allocation reviews while other assessments do not, depending on the nature of existing allocations and the results of new assessments. There was also concern on how unassessed stocks would be affected. The Subgroup's best estimate for the quickest turn-around for completing allocation reviews that councils consider urgent is 1-2 years, with a minimum of one year for commissions for an amendment and six months for a commission addendum.

If revised estimates result in stock status determinations being changed to "overfishing" or "overfished," workload will increase for NOAA Fisheries, councils, and commissions to develop and react to rebuilding plans and requirements to end overfishing.

During 2018, the primary transition year, fishery managers need to evaluate whether ACLs can be set for each stock by using FES-compatible updated assessment information. If so, then MRIP catch estimates based on 2018 FES effort estimates will be used to account for the ACLs and to determine whether accountability measures are triggered.

For stocks that do not have updated FES-compatible assessments and ACLs in 2018, accounting for catch and management of ACLs and accountability measures will be done by using reverse-calibration of the FES-based MRIP catch estimates, so that the catch data used for management is consistent with the legacy catch data used to set the ACLs.

VI. Identification of Unknowns

As the transition proceeds, the Subgroup identified several unknowns that will be important to monitor due to the potential effects they may have on planned schedules.

- If the APAIS model development is delayed for any reason, this could push back the availability of the combined FES-APAIS effort and catch estimates currently scheduled for July 2018 to a later date.
- Although there could have been a legal challenge to either incorporate estimates sooner or to delay in order to get better precision; e.g., the Red Snapper court decision (*Guindon v. Pritzker*: March 26, 2014), no such challenge has yet come forward to force a change in schedule.
- Congress told NOAA Fisheries not to implement the FES sooner than 2018.

After the first and second years of benchmarking, any issues that arose were outlined in progress reports.

VII. Further Experiments

It is necessary to understand what factors are causing the large differences in estimates between the CHTS and the FES found in the pilot study. A list of past studies is available in [Appendix 4](#). Since the 2015 Plan, NOAA Fisheries has continued to investigate what potential causes could have affected recreational fishing effort estimates.

One study, MRIP Exploring Differences Between Mail and Telephone Survey Estimates of Fishing Effort: Measurement Error, aims to 1) quantify the magnitude of measurement error, specifically the gatekeeper effect, in the CHTS; and 2) determine the extent to which the gatekeeper effect contributes to differences between FES and CHTS effort estimates. The report is expected to be completed in spring 2018.

VIII. Integrating APAIS Calibrations with the FES/CHTS Calibration

The Subgroup recognized the opportunity to learn from prior MRIP calibration efforts deemed necessary to account for consistent changes in estimates resulting from the implementation of other survey design improvements. Monitoring progress in the development and application of these other calibration approaches was important in determining how best to move forward with developing and applying an appropriate calibration of the FES against the CHTS. In addition, coordinating the application of necessary calibrations as much as possible will alleviate the need to make numerous changes to the historical time series of catch statistics. The goal should be to simultaneously apply the different calibrations to produce one revised set of catch statistics that remain unchanged for an extended period.

In 2012, an MRIP Calibration Workshop was held to determine the most appropriate way to account for any consistent changes in 2004-2011 catch statistics that resulted from the implementation of an improved estimation method for the APAIS conducted on the At-

lantic and Gulf coasts. Workshop participants included representatives from NOAA Fisheries, the regional fishery management councils, the interstate marine fisheries commissions, and several state agencies. Participants concluded a simple ratio calibration approach based on the 2004-2011 comparisons was appropriate to use for re-estimating catches in earlier years (1981-2003). In this case, eight years of side-by-side estimates were available for benchmarking, and the calibration model was based on the average annual new:old ratios. Since then, this ratio calibration has been applied to update recreational catch statistics for all stocks prior to incorporation into stock assessments.

In 2014, a Southeast Data, Assessment, and Review/MRIP Calibration Workshop was held to evaluate the potential effects of implementing a new sampling design for the APAIS on the Atlantic and Gulf coasts in 2013. Workshop participants included three expert statistical consultants and representatives from NOAA Fisheries, the regional fishery management councils, the interstate marine fisheries commissions, and several state agencies. The participants determined that analyses conducted by the NOAA Fisheries Office of Science and Technology showed there was sufficient evidence that the more complete temporal coverage of the new design resulted in consistent increases or decreases in APAIS angler catch rate statistics for at least some species. The participants developed three different calibration models to evaluate for possible use in correcting the pre-2013 legacy catch statistics. In this case, no side-by-side benchmarking comparisons could be made. However, the statistical consultants concluded the simplest of the three proposed models was appropriate for use in the short term until more data collected with the new APAIS design could be used to complete evaluation of the other two proposed calibration models. The simple ratio calibration approach was used to revise historical catch statistics and incorporate them into stock assessment updates for Gulf Red Snapper, Gulf Red Grouper, and other key stocks in 2015. With the help of expert statistical consultants, MRIP is now working on completing development and evaluation of the other two proposed calibration models to determine which of the three models is the best for use in re-estimation of historical APAIS catch rates and incorporation of new catch rate estimates into stock assessments and management.

One important lesson learned in the 2014 APAIS design change calibration effort was that the development of an appropriate calibration would have been much simpler if data from a side-by-side benchmarking of the new and old APAIS designs had been available for all states. Without such data, this particular calibration relied on a number of assumptions about how catch statistics for 2013 and later years would have differed if based on conduct of the old APAIS sampling design. If side-by-side data had been available, the differences in estimates caused by a difference in temporal coverage and other factors could have been directly measured. This underlines the importance of conducting the FES alongside the CHTS to get a good measure of consistent differences in their resulting estimates of fishing effort.

As work continues to evaluate the three alternative APAIS design change calibration models, it will be possible to examine the sensitivity of the models to the number of years used for comparisons of the temporal coverage of sampling under the new and old designs. For example, it will be possible to look at how the simple ratio calibration used in 2015 may have changed with the inclusion of more years of data collected using the new APAIS design. Such sensitivity studies could be important for understanding the potential effects of interannual variability on the results of any calibration approach.

The Subgroup decided it would be important to integrate the APAIS calibration efforts with the FES calibration and transition planning. The Terms of Reference for the 2014 APAIS Calibration Workshop referenced the importance of coordinating any new calibration accounting for the APAIS sample design change with the previous APAIS estimation change calibration and any future calibrations for other substantial MRIP survey design changes for the Atlantic and Gulf states. Consequently, the Subgroup decided to wait and apply the selected APAIS calibration in combination with the FES calibration planned for implementation in 2018.

In accordance with the evolving Transition Plan, the development of an appropriate FES/CHTS Calibration Model was completed in 2017. The model was developed by MRIP consultants at Colorado State University and Westat, in consultation with MRIP staff. The model comprises an application of small area estimation

methods using the Fay-Herriot Model (linear mixed effects model). There are separate models for fishing modes for private boat and shore fishing. There are also separate effects for states, waves, and states by waves.

The FES/CHTS Calibration Model Peer Review Workshop was held from June 27-29, 2017 in Silver Spring, MD. There were seven outside reviewers on the panel, including a chair, along with three others from council Scientific and Statistical Committees and the Atlantic States Marine Fisheries Commission, as well as three Center of Independent Experts reviewers. The workshop was accessible by webinar and fully recorded, and each reviewer provided an independent review while the chair provided a summary. Overall, all reviewer comments were positive.

The reviewers' recommendations pertaining to the FES calibration model were to:

- Further evaluate the model with the full three years of benchmarking data.
- Provide additional information in the final calibration model report.
- Continue working to identify additional covariates that may help explain differences between FES and CHTS estimates.
- Examine ways to improve the peer review process.
- Improve communications with a wider variety of audiences to explain the rationale for transitioning to the FES and calibrating the time series of effort and catch statistics.

The recommendations from the FES model development and peer review are helping the Team and MRIP in the final steps of the APAIS model development. Currently the same group that developed the FES model at Colorado State University, Westat, and NOAA Fisheries is continuing to evaluate the three alternative APAIS design change calibration models. They anticipate completing their evaluation by February 2018.

The peer review of the proposed APAIS model is expected to be completed in March 2018. The experience with the FES peer review and that panel's recommendations are being used to improve the process and planning for the APAIS model peer review.



IX. Appendices

APPENDIX 1: Key Stocks with Initial Priority Ranking

APPENDIX 2: Management and Stock Assessment Schedule of Key Stocks

APPENDIX 3: Overview of the Long-Term Communications Strategy for the Transition from the Coastal Household Telephone Survey to the Fishing Effort Survey

APPENDIX 4: List of Previous Pilot Studies and Links to Final Reports

APPENDIX 5: List of Current MRIP Transition Team’s Atlantic and Gulf Subgroup Representatives

APPENDIX 1

Key Stocks with Initial Priority Ranking

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Gag - Gulf of Mexico	1	61
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Greater amberjack - Gulf of Mexico	1	73
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Red snapper - Gulf of Mexico	1	49
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Gray triggerfish - Gulf of Mexico	1	79
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Red grouper - Gulf of Mexico	2	24
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Gray snapper - Gulf of Mexico	2	68
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Cubera snapper - Gulf of Mexico	3	51
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Gulf of Mexico Deep Water Grouper Complex	3	35
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Gulf of Mexico Mid-Water Snapper Complex	3	51
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Gulf of Mexico Shallow Water Grouper Complex	3	35
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Lane snapper - Gulf of Mexico	3	75
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Snowy grouper - Gulf of Mexico	3	35
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Vermilion snapper - Gulf of Mexico	2	NA
GMFMC	SEFSC	Reef Fish Resources of the Gulf of Mexico	Yellowedge grouper - Gulf of Mexico	3	35
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Sandbar shark	1	50
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Silky shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Tiger shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Blacktip shark - Atlantic	1	44

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Blacktip shark - Gulf	1	37
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bull shark	2	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Spinner shark	2	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Lemon shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Nurse shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Scalloped hammerhead shark	1	86
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Smooth hammerhead shark	2	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Great hammerhead shark	2	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Atlantic sharpnose shark - Atlantic	2	12
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Atlantic sharpnose shark - Gulf	3	2
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Blacknose shark - Atlantic	3	3
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Blacknose shark - Gulf	2	8
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bonnethead shark - Atlantic	3	9
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bonnethead shark - Gulf	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Finetooth shark	2	31
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Blue shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Oceanic whitetip	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Porbeagle shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Shortfin mako	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Common Thresher shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Atlantic angel shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Basking shark	3	NA

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bigeye sand tiger shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bigeye sixgill shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bigeye thresher shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bignose shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Caribbean reef shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Caribbean sharpnose shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Dusky shark	1	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Galapagos shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Longfin mako shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Narrowtooth	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Night shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Sand tiger shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Sevengill shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Sixgill shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Smalltail shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Whale shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	White shark	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Smooth dogfish shark - Atlantic	1	34
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Smoothhound complex- Gulf	3	1.3
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bluefin tuna - Western Atlantic	3	20
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Swordfish - Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Yellowfin tuna - Atlantic	3	NA

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Bigeye tuna - Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Albacore - Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Skipjack - Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	White marlin - Western Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Blue marlin - North Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Roundscale spearfish - North Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Sailfish - Atlantic	3	NA
HMS	SEFSC	Consolidated Atlantic Highly Migratory Species	Longbill spearfish - Western Atlantic	3	NA
MAFMC	NEFSC	Atlantic Mackerel, Squid and Butterfish	Atlantic mackerel - Gulf of Maine / Cape Hatteras	3	6.2
MAFMC	NEFSC	Bluefish	Bluefish - Atlantic Coast	1	83
MAFMC	NEFSC	Summer Flounder, Scup and Black Sea Bass	Black sea bass - Mid-Atlantic Coast	1	51
MAFMC	NEFSC	Summer Flounder, Scup and Black Sea Bass	Scup - Atlantic Coast	2	22
MAFMC	NEFSC	Summer Flounder, Scup and Black Sea Bass	Summer flounder - Mid-Atlantic Coast	1	40
MAFMC	NEFSC		Blueline tilefish – Mid-Atlantic Coast	2	NA
MAFMC	NEFSC		Golden tilefish	3	NA
NEFMC	NEFSC	Northeast Multispecies	Atlantic cod - Gulf of Maine	1	33.7
NEFMC	NEFSC	Northeast Multispecies	Haddock - Gulf of Maine	1	27.5
SAFMC	SEFSC	Dolphin and Wahoo Fishery of the Atlantic	Dolphinfish - Southern Atlantic Coast	3	87
SAFMC	SEFSC	Dolphin and Wahoo Fishery of the Atlantic	Wahoo - Southern Atlantic Coast	3	95.7
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Black sea bass - Southern Atlantic Coast	1	57
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Gag - Southern Atlantic Coast	1	49

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Red snapper - Southern Atlantic Coast	1	71.93
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Snowy grouper - Southern Atlantic Coast	2	5
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Atlantic spadefish - Southern Atlantic Coast	3	87.1
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Bar jack - Southern Atlantic Coast	3	67.42
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Blue runner - Southern Atlantic Coast	3	85.4
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Blueline tilefish - Southern Atlantic Coast	2	52.61
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Gray snapper - Southern Atlantic Coast	1	80
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Gray triggerfish - Southern Atlantic Coast	1	54.61
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Greater amberjack - Southern Atlantic Coast	2	59.34
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Hogfish - Southern Atlantic Coast	1	66.97
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Lane snapper - Southern Atlantic Coast	3	87.79
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Red grouper - Southern Atlantic Coast	2	56
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Red porgy - Southern Atlantic Coast	2	50
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Scamp - Southern Atlantic Coast	1	30.64
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	South Atlantic Deepwater Complex	3	Varies
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	South Atlantic Grunts Complex	3	Varies
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	South Atlantic Jacks Complex	3	Varies
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	South Atlantic Porgy Complex	3	Varies

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	South Atlantic Shallow Water Snapper-Grouper Complex	3	Varies
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	South Atlantic Snappers Complex	3	Varies
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Tilefish - Southern Atlantic Coast	3	3
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Vermilion snapper - Southern Atlantic Coast	1	32
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	White grunt - Southern Atlantic Coast	2	67.33
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Wreckfish - Southern Atlantic Coast	3	5
SAFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region	Yellowedge grouper - Southern Atlantic Coast	3	3.81
SAFMC / GMFMC	SEFSC	Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic	King mackerel - Gulf of Mexico	1	68
SAFMC / GMFMC	SEFSC	Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic	King mackerel - Southern Atlantic Coast	1	62.9
SAFMC / GMFMC	SEFSC	Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic	Spanish mackerel - Gulf of Mexico	1	43
SAFMC / GMFMC	SEFSC	Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic	Spanish mackerel - Southern Atlantic Coast	1	45
SAFMC / GMFMC	SEFSC	Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic	Cobia - Southern Atlantic Coast	1	92
SAFMC / GMFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region / Reef Fish Resources of the Gulf of Mexico	Black grouper - Southern Atlantic Coast / Gulf of Mexico	2	63.12
SAFMC / GMFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region / Reef Fish Resources of the Gulf of Mexico	Mutton snapper - Southern Atlantic Coast / Gulf of Mexico	1	57
SAFMC / GMFMC	SEFSC	Snapper-Grouper Fishery of the South Atlantic Region / Reef Fish Resources of the Gulf of Mexico	Yellowtail snapper - Southern Atlantic Coast / Gulf of Mexico	1	47.44

Jurisdiction	Center	FMP	Status Stock	Ranking (1-3) (1 = highest priority)	Percent Recreational
SAFMC / GMFMC	SEFSC	Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic	Cobia - Gulf of Mexico	3	NA
ASMFC		Tautog FMP	Tautog	1	NA
ASMFC	NEFSC	Atlantic Striped Bass FMP	Striped bass	1	NA
ASMFC		Weakfish FMP	Weakfish	2	NA
ASMFC		Omnibus Amendment for Spot, Spotted Seatrout, and Spanish Mackerel	Spot	3	NA
ASMFC		Red Drum FMP	Red drum	1	NA

APPENDIX 2

Management and Stock Assessment Schedule of Key Stocks

Jurisdiction	Center	Status Stock	Ranking (1-3, 1=top priority)	% Rec	Assessment Month/Year	Data Deadline for Assessment	Update Type	Annual Catch Limit (timing of normal specs)
ASMFC								
ASMFC	NEFSC	Striped bass	1	NA	2018		Benchmark	NA
ASMFC	NEFSC	Red drum	1	NA	TBD		TBD	NA
ASMFC	NEFSC	Tautog	1	NA	TBD		TBD	NA
ASMFC	NEFSC	Weakfish	2	NA	2009*		Full Update	
ASMFC	NEFSC	Spot	3	NA	Jun. 2018		Data: Jun. 2018; Operational: Early 2019	
GMFMC								
GMFMC	SEFSC	Gag - Gulf of Mexico	1	61	Jan. 2017	Jun. 2017	Full Update	Jan.
GMFMC	SEFSC	Greater amberjack - Gulf of Mexico	1	73	Mar. 2017	Oct. 2017	Full Update	Jan.
GMFMC	SEFSC	Red snapper - Gulf of Mexico	1	51.5	Mar. 2018	Aug. 2017	Full: Mar. 2018; Data: Fall 2018	Jan.
GMFMC	SEFSC	Gray triggerfish - Gulf of Mexico	1	79	Mar. 2019		Full Update	Jan.
GMFMC	SEFSC	Red grouper - Gulf of Mexico	2	24	Feb. 2019		Full Update	Jan.
GMFMC	SEFSC	Vermillion snapper - Gulf of Mexico	2	NA	2011*		Full Update	Jan.
GMFMC	SEFSC	Gray snapper - Gulf of Mexico	2	68	Apr. 2018	Apr. 2017	Benchmark	Jan.
GMFMC	SEFSC	Cubera snapper - Gulf of Mexico	3	51	Not assessed			Jan.
GMFMC	SEFSC	Gulf of Mexico Deep Water Grouper Complex	3	35	Not assessed			Jan.
GMFMC	SEFSC	Gulf of Mexico Mid-Water Snapper Complex	3	51	Not assessed			Jan.
GMFMC	SEFSC	Gulf of Mexico Shallow Water Grouper Complex	3	35	Not assessed			Jan.
GMFMC	SEFSC	Lane snapper - Gulf of Mexico	3	75	Not assessed			Jan.
GMFMC	SEFSC	Snowy grouper - Gulf of Mexico	3	35	Not assessed			NA
GMFMC	SEFSC	Yellowedge grouper - Gulf of Mexico	3	35	2010*		Benchmark	NA

*Last assessment/none scheduled.

Jurisdiction	Center	Status Stock	Ranking (1-3, 1=top priority)	% Rec	Assessment Month/Year	Data Deadline for Assessment	Update Type	Annual Catch Limit (timing of normal specs)
HMS	SEFSC	Blacktip shark - Atlantic	1	44	Jun. 2006*		Benchmark	Jan.
HMS	SEFSC	Blacktip shark - Gulf	1	37	Oct. 2018	Sep. 2017	Full Update	Jan.
HMS	SEFSC	Dusky shark - Atlantic	1	NA	Jul. 2016*		Full Update	NA
HMS	SEFSC	Smooth dogfish shark - Atlantic	1	34	Not assessed		New - Benchmark	Jan.
HMS	SEFSC	Smooth dogfish shark - Gulf	1	NA	Not assessed		New - Benchmark	Jan.
HMS	SEFSC	Sandbar shark - Atlantic	1	50	Jan. 2018		Full Update	Jan.
HMS	SEFSC	Scalloped hammerhead shark - Atlantic	1	86	Oct. 2009*			Jan.
HMS	SEFSC	Atlantic sharpnose shark - Atlantic	2	12	2013*		Full Update	June
HMS	SEFSC	Blacknose shark - Gulf	2	8	2011*		Full Update	Jan.
HMS	SEFSC	Finetooth shark - Atlantic	2	31	2007*		Benchmark	June
HMS	SEFSC	Great hammerhead shark - Atlantic	2	NA	2002*			NA
HMS	SEFSC	Smooth hammerhead shark - Atlantic	2	NA	2002*			NA
HMS	SEFSC	Bull shark - Atlantic	2	NA	2002*			NA
HMS	SEFSC	Spinner shark - Atlantic	2	NA	2002*			NA
HMS	SEFSC	Common Thresher shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Florida smoothhound shark - Gulf	3	NA	Not assessed			NA
HMS	SEFSC	Galapagos shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Gulf smoothhound shark - Gulf	3	1.3	Not assessed			NA
HMS	SEFSC	Atlantic sharpnose shark - Gulf	3	2	2013*		Full Update	June
HMS	SEFSC	Blacknose shark - Atlantic	3	3	2011*		Full Update	NA
HMS	SEFSC	Bonnethead shark - Atlantic	3	9	Not assessed			June
HMS	SEFSC	Bonnethead shark - Gulf	3	NA	Not assessed			June
HMS	SEFSC	Caribbean reef shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Caribbean sharpnose shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Oceanic whitetip shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Albacore - Atlantic	3	NA	2013*		Full Update	NA
HMS	SEFSC	Atlantic angel shark - Atlantic	3	NA	2002*			NA

*Last assessment/none scheduled.

Jurisdiction	Center	Status Stock	Ranking (1-3, 1=top priority)	% Rec	Assessment Month/Year	Data Deadline for Assessment	Update Type	Annual Catch Limit (timing of normal specs)
HMS	SEFSC	Basking shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Bigeye sand tiger shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Bigeye sixgill shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Bigeye thresher shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Bigeye tuna - Atlantic	3	NA	2010*		Benchmark	NA
HMS	SEFSC	Bignose shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Blue marlin - North Atlantic	3	NA	2011*		Full Update	NA
HMS	SEFSC	Blue shark - Atlantic	3	NA	2008*		Benchmark	Jan.
HMS	SEFSC	Bluefin tuna - Western Atlantic	3	20	2014*		Full Update	NA
HMS	SEFSC	Lemon shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Longbill spearfish - Western Atlantic	3	NA	1997*			NA
HMS	SEFSC	Longfin mako shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Narrowtooth shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Night shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Nurse shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Porbeagle shark - Atlantic	3	NA	2009*		New	Jan.
HMS	SEFSC	Roundscale spearfish - North Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Sailfish - Atlantic	3	NA	2009*		New	NA
HMS	SEFSC	Sand tiger shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Sevengill shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Shortfin mako shark - Atlantic	3	NA	2012*		Benchmark	NA
HMS	SEFSC	Silky shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Sixgill shark - Atlantic	3	NA	Not assessed			NA
HMS	SEFSC	Skipjack - Atlantic	3	NA	2014*		Benchmark	NA
HMS	SEFSC	Smalltail shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Swordfish - Atlantic	3	NA	2013*		Full Update	NA
HMS	SEFSC	Tiger shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Whale shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	White marlin - Atlantic	3	NA	2012*		Benchmark	NA
HMS	SEFSC	White shark - Atlantic	3	NA	2002*			NA
HMS	SEFSC	Yellowfin tuna - Atlantic	3	NA	2011*		Full Update	NA

*Last assessment/none scheduled.

Jurisdiction	Center	Status Stock	Ranking (1-3, 1=top priority)	% Rec	Assessment Month/Year	Data Deadline for Assessment	Update Type	Annual Catch Limit (timing of normal specs)
MAFMC								
MAFMC	NEFSC	Bluefish - Atlantic Coast	1	83	Jun. 2018		Data: Jun. 2018; Operational: Early 2019	Jan.
MAFMC	NEFSC	Black sea bass - Mid-Atlantic Coast	1	51	Jun. 2018		Data: Jun. 2018; Operational: Early 2019	Jan.
MAFMC	NEFSC	Summer flounder - Mid-Atlantic Coast	1	40	Jun. 2018		Data: Jun. 2018; Benchmark: Fall 2018	Jan.
MAFMC	NEFSC	Scup - Atlantic Coast	2	22	Jun. 2018		Data: Jun. 2018; Operational: Early 2019	Jan.
MAFMC	NEFSC	Blueline tilefish - Mid-Atlantic Coast	2	NA	2017	Oct. 2017	Benchmark	Nov.
MAFMC	NEFSC	Atlantic mackerel - Gulf of Maine/Cape Hatteras	3	6.2	Nov. 2017		Benchmark	Jan.
MAFMC	NEFSC	Golden tilefish	3	NA	Mar. 2017		Full Update	Nov.
NEFMC								
NEFMC	NEFSC	Atlantic cod - Gulf of Maine	1	33.7	Fall 2019		Operational: Fall 2019	May
NEFMC	NEFSC	Haddock - Gulf of Maine	1	27.5	Fall 2019		Operational: Fall 2019	May
SAFMC								
SAFMC	SEFSC	Black sea bass - Southern Atlantic Coast	1	57	Apr. 2018	Jan. 2017	Full Update	Jun.
SAFMC	SEFSC	Gag - Southern Atlantic Coast	1	49	Mar. 2020		Full Update	Jan.
SAFMC	SEFSC	Gray triggerfish - Southern Atlantic Coast	1	54.61	Dec. 2001*			Jan.
SAFMC	SEFSC	Hogfish - Southern Atlantic Coast (NC-GA)	1	66.97	Sep. 2014*		Benchmark	Jan.
SAFMC	SEFSC	Hogfish - Southern Atlantic Coast (FL)	1	66.97	Sep. 2014*		Benchmark	Jan.
SAFMC	SEFSC	Red snapper - Southern Atlantic Coast	1	71.93	2020		Full Update	NA
SAFMC	SEFSC	Gray snapper - Southern Atlantic Coast	1	80	Dec. 1993*			Jan.
SAFMC	SEFSC	Scamp - Southern Atlantic Coast	1	30.64	Dec. 1997*			Jan.
SAFMC	SEFSC	Vermillion snapper - Southern Atlantic Coast	1	32	Apr. 2018	Jun. 2017	Full Update	Jan.

*Last assessment/none scheduled.

Jurisdiction	Center	Status Stock	Ranking (1-3, 1=top priority)	% Rec	Assessment Month/Year	Data Deadline for Assessment	Update Type	Annual Catch Limit (timing of normal specs)
SAFMC	SEFSC	Blueline tilefish - Southern Atlantic Coast	2	52.61	2017	Oct. 2017	Benchmark	N/A
SAFMC	SEFSC	Red porgy - Southern Atlantic Coast	2	50	Mar. 2019		Full Update	Jan.
SAFMC	SEFSC	Greater amberjack - Southern Atlantic Coast	2	59.34	Dec. 2018		Full Update	May
SAFMC	SEFSC	Red grouper- Southern Atlantic Coast	2	56	Mar. 2017		Full Update	Jan.
SAFMC	SEFSC	Snowy grouper - Southern Atlantic Coast	2	5	2014*			Jan.
SAFMC	SEFSC	White grunt - Southern Atlantic Coast	2	67.33	2001*			Jan.
SAFMC	SEFSC	Dolphinfish - Southern Atlantic Coast	3	87	Not assessed			Jan.
SAFMC	SEFSC	Wahoo - Southern Atlantic Coast	3	95.7	2000*			Jan.
SAFMC	SEFSC	Atlantic spadefish - Southern Atlantic Coast	3	87.1	Not assessed			Jan.
SAFMC	SEFSC	Bar jack - Southern Atlantic Coast	3	67.42	Not assessed			Jan.
SAFMC	SEFSC	Blue runner - Southern Atlantic Coast	3	85.4	Not assessed			NA
SAFMC	SEFSC	Lane snapper - Southern Atlantic Coast	3	87.79	1992*			NA
SAFMC	SEFSC	South Atlantic Deepwater Snapper-Grouper Complex	3	Varies	Not assessed			Jan.
SAFMC	SEFSC	South Atlantic Grunts Complex	3	Varies	Not assessed			NA
SAFMC	SEFSC	South Atlantic Jacks Complex	3	Varies	Not assessed			Jan.
SAFMC	SEFSC	South Atlantic Porgy Complex	3	Varies	Not assessed			Jan.
SAFMC	SEFSC	South Atlantic Shallow Water Snapper-Grouper Complex	3	Varies	Not assessed			Jan.
SAFMC	SEFSC	South Atlantic Snappers Complex	3	Varies	Not assessed			Jan.
SAFMC	SEFSC	Tilefish - Southern Atlantic Coast	3	3	2011*		Benchmark	NA
SAFMC	SEFSC	Wreckfish - Southern Atlantic Coast	3	5	2014*		New	Apr.
SAFMC	SEFSC	Yellowedge grouper - Southern Atlantic Coast	3	3.81	2001*			NA

*Last assessment/none scheduled.

Jurisdiction	Center	Status Stock	Ranking (1-3, 1=top priority)	% Rec	Assessment Month/Year	Data Deadline for Assessment	Update Type	Annual Catch Limit (timing of normal specs)
SAFMC/ GMFMC								
SAFMC/ GMFMC	SEFSC	Cobia - Southern Atlantic Coast	1	92	Apr. 2013*		Benchmark	Jan.
SAFMC/ GMFMC	SEFSC	King mackerel - Gulf of Mexico	1	68	Aug. 2014*		Benchmark	Jul.
SAFMC/ GMFMC	SEFSC	King mackerel - Southern Atlantic Coast	1	62.9	Aug. 2014*		Benchmark	May.
SAFMC/ GMFMC	SEFSC	Spanish mackerel - Gulf of Mexico	1	43	Aug. 2013*		Benchmark	Apr.
SAFMC/ GMFMC	SEFSC	Spanish mackerel - Southern Atlantic Coast	1	45	Apr. 2013*		Benchmark	May
SAFMC/ GMFMC	SEFSC	Mutton snapper - Southern Atlantic Coast/Gulf of Mexico	1	57	Feb. 2015*		Full Update	Jan.
SAFMC/ GMFMC	SEFSC	Yellowtail snapper - Southern Atlantic Coast/Gulf of Mexico	1	47.44	Dec. 2018		Benchmark	Jan.
SAFMC/ GMFMC	SEFSC	Black grouper - Southern Atlantic Coast/Gulf of Mexico	2	63.12	Nov. 2017		Benchmark	Jan.
SAFMC/ GMFMC	SEFSC	Cobia - Gulf of Mexico	3	NA	Jan. 2013*		Benchmark	Jan.

*Last assessment/none scheduled.

APPENDIX 3

Overview of the Long-Term Communications Strategy for the Transition from the Coastal Household Telephone Survey to the Fishing Effort Survey

Strategic Approach

Successful communication for this effort is predicated on our ability to share as much accurate and timely information with as many key audiences as frequently as possible. The reason is that in a high-stakes, unstable communications environment, it is essential to maintain trust. This includes sharing both what we do know and what we don't know.

The primary goals will be achieved through a number of strategies, which are in turn supported by specific tactics. Throughout the process, we will also communicate progress, as warranted, on the concurrent efforts to finalize the APAIS calibration. This work will focus primarily on providing relevant updates as they relate to the interplay between APAIS and FES, and the ultimate potential impact of revised APAIS estimates on stock assessments.

Goal 1

Through engagement and two-way dialogue, inform and empower internal and external partners as active participants and information resources in the FES calibration model development process. Building on the model of the Transition Team, use two-way dialogue to improve the knowledge of partners regarding the transition from the CHTS to FES and empower them to serve as information resources.

Strategies

- Promote an open and productive dialogue among data partners, councils, and

commissions to facilitate the progress of the Transition Team toward meeting its goals.

- Empower the Transition Team, regional offices, science centers, NOAA Fisheries recreational fishing coordinators, and other key potential spokespersons with the tools needed to successfully communicate each step of the transition process.
- Work with our partners to set appropriate expectations for timing of transition and management program changes—including potential changes to allocation.

Goal 2

Through engagement and two-way dialogue, educate and inform stakeholders, including Congress and anglers, to encourage support of the FES and its effects on fisheries management. Use constructive, two-way dialogue to identify needs of stakeholders and provide materials and updates, based on their feedback, to clearly communicate progress with the FES transition and potential management implications to anglers.

Strategies

- Inform Congress and anglers of upcoming FES transition milestones and developments and possible management implications.
- Develop specific mechanisms to track results of calibration model on high-profile species.
- Collaborate with regional offices and science centers to ensure consistent, frequent

information-sharing regarding the overall transition while addressing specific species of concern.

Goal 3

Through ongoing dialogue, identify species of most concern and greatest potential impact and develop individualized, species specific strategies as needed – support regional outreach regarding management implications for key/popular recreational stocks, e.g., Gulf red snapper, summer flounder, black sea bass, cobia, etc.

Strategies

- Work with partners and stakeholders to identify species of highest concern to the recreational fishing community, and target resources as appropriate for targeted education and outreach activities.

- In cooperation with management partners, inform Congress of possible management implications to high-profile, regional stocks.
- Collaborate with regional offices, science centers, councils and commissions to ensure regular, consistent information-sharing regarding specific species of concern.

Additional outreach and materials targeted to specific groups and key messages have been developed through work with members of the national and regional MRIP Communications and Education Team. This includes identification of key regional stakeholder groups that have been targeted, completion of a regional needs assessment of FES communication materials and resources, and identification of areas where regional communications staff are taking the lead for outreach activities and updates.

APPENDIX 4

List of Previous Pilot Studies and Links to Final Reports

The following is a list of the pilot projects that led to the final survey design of the Fishing Effort Survey (FES). Included for each pilot is a link to access the final report.

Development of a Dual-Frame Methodology for Estimating Marine Recreational Fishing Effort

[View report here.](#)

Pilot Test of a Dual Frame Two-Phase Mail Survey of Anglers in North Carolina

[View report here.](#)

Dual-Frame Mail Survey: Enhancing Survey Mail Response Rates

[View report here.](#)

Continued Development and Testing of Dual-Frame Surveys of Fishing Effort

[View report here.](#)

APPENDIX 5

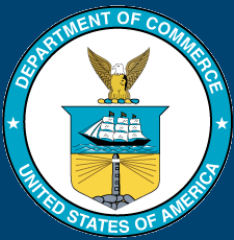
List of Current MRIP Transition Team's Atlantic and Gulf Subgroup Representatives

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