

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Review of the Marine Recreational Information Program



Presented by
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Committee Co-Chairs
February 1, 2017

Study Origin

- Collectively, recreational fishing can have significant impacts on the status of a fish stock.
- Recreational angling presents particular challenges to data collection:
 - Number of anglers;
 - Distances traveled;
 - Angling frequency; and
 - Diversity of sites (some private).
- State-, Region-, Sector-, Species-specific data needs.
- NOAA's National Marine Fisheries Service has responsibility for collecting data on recreational fishing.
- MRIP is only one component of a complex fisheries management system.
 - Together, MRIP data and with data from other sources, including commercial fisheries, are used by stock assessment analysts to assess fish populations.

Study Origin

2006

- National Academies completed review of the Marine Recreational Fisheries Statistics Survey (MRFSS)
- Called for significant improvements to the survey program

2007

- Reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act mandated that the program implement, to the extent possible, the recommendations of the 2006 report

~10 Years

- MRFSS → Marine Recreational Information Program (MRIP)

Now

- Current study evaluates NMFS efforts to address the 2006 recommendations

Committee Charge

- Describe the approach and effectiveness of steps taken by NMFS to improve the quality and accuracy of catch, effort, and participation statistics.
- Assess the strength of the scientific process, including the engagement of external scientific and technical expertise.
- Evaluate communication and application of stakeholder input.
- Determine if degree of coordination between federal, state, and territorial survey programs is sufficient for a clear, national perspective.
- Evaluate plans for maintaining continuity of data series.

Study Committee

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Staff

STACEE KARRAS, Program Officer, Ocean Studies Board

DAVID POLICANSKY, Scholar, Board on Environmental Science and Toxicology

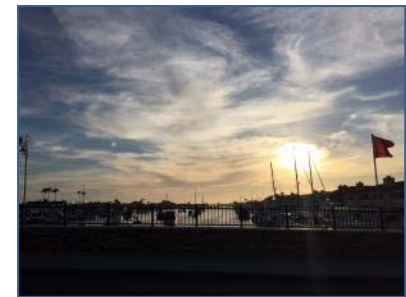
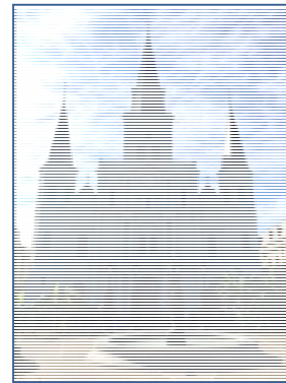
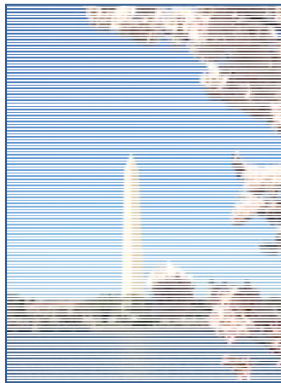
MICHAEL COHEN, Senior Program Officer, Committee on National Statistics

PAYTON KULINA, Senior Program Assistant, Ocean Studies Board

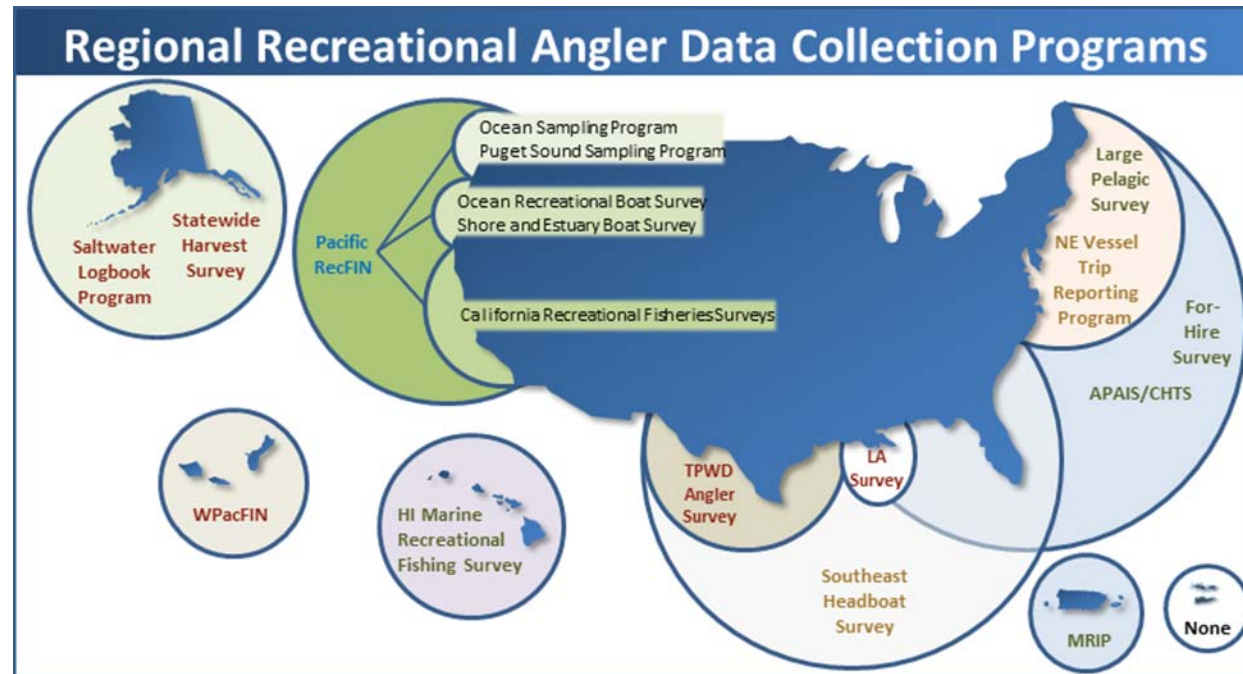
ALLIE PHILLIPS, Program Assistant, Ocean Studies Board

Committee Meetings

- Met on four occasions:
 - Washington, D.C. (February 24-26, 2016);
 - Charleston, South Carolina (April 25-26, 2016);
 - New Orleans, Louisiana (May 26-28, 2016); and
 - Irvine, California (July 11-13, 2016).



Component Surveys



- MRIP is composed of multiple surveys.
- For Task #1, report focuses primarily on Fishing Effort Survey (FES) and Access Point Angler Intercept Survey (APAIS).

Report Structure

Summary

Chapter 1: Introduction

Chapter 2: Study Design and Estimation Considerations for MRIP

Chapter 3: Sampling and Statistical Estimation for FES

Chapter 4: Sampling and Statistical Estimation for APAIS

Chapter 5: Framework for Continued Scientific Evaluation, Review, and Certification

Chapter 6: Degree of Coordination

Chapter 7: Communication and Outreach with Stakeholders

Chapter 8: Plans for Maintaining Continuity

Fishing Effort Survey (FES)

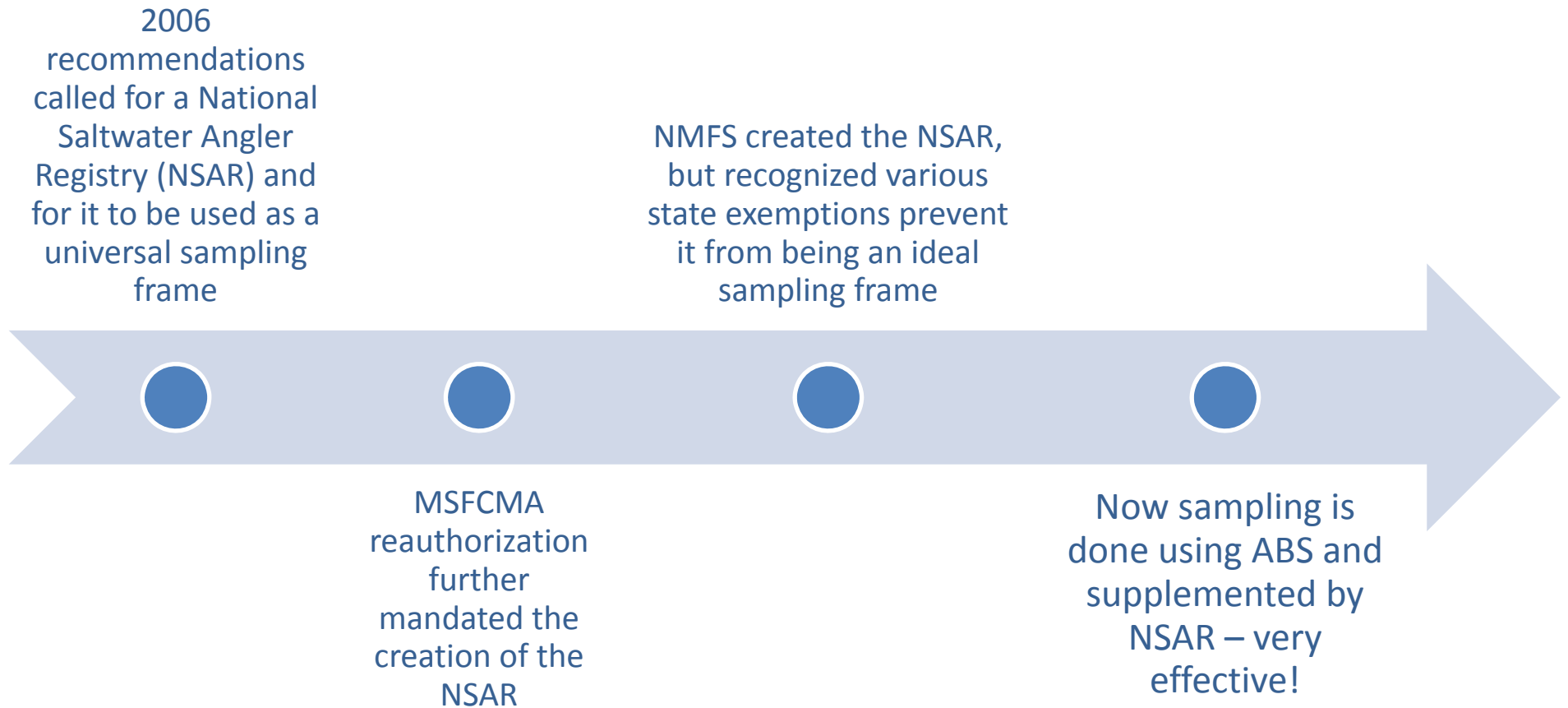
The methodologies, including the address-based sampling (ABS) mail survey design, are major improvements from the original Coastal Household Telephone Survey that employed random-digit-dialing.



FES Frame

- Pilot studies determined that mail surveys augmented with license data proved the most efficient and statistically valid approach for MRIP.
- Mail surveys have higher response rates than telephone surveys.
- Mail frame was stratified by coastal vs non-coastal counties within a coastal state.
- Mail frame was augmented with registry data to improve efficiency (3X > CHTS response rate).

FES and the National Saltwater Angler Registry (NSAR)



FES

Highlighted and Abbrev. Recommendations

Highlighted and Abbrev. Recommendations:

- Continue to evaluate the cognitive properties of a 2-month recall period.
- Consider evaluating a prospective data collection.
- Further evaluate electronic data collection as an option for the FES.

Access Point Angler Intercept Survey (APAIS)

The new APAIS design is a substantial improvement on the MRFSS intercept survey methodologies.

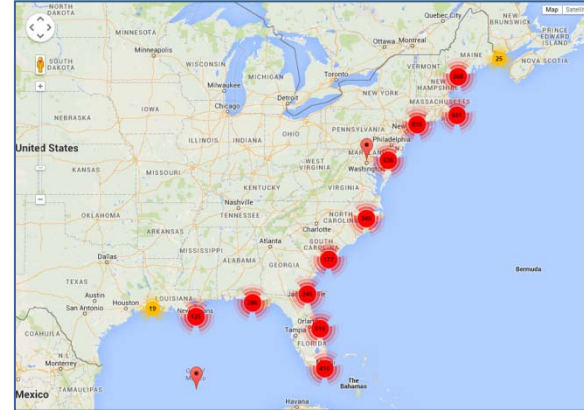


APAIS (cont'd)

- Sampling is conducted throughout the day and night with emphasis on the busiest periods.
- Samplers are no longer allow discretion in sampling location.
- Number of interviews no longer has a cap.
- In the new design: the likelihood of a site/time combination being selected for an interviewer is proportional to past observed effort at that site/time → efficient estimates (if the cluster inclusion probabilities are approximately proportional to the cluster catch).

APAIS (cont'd)

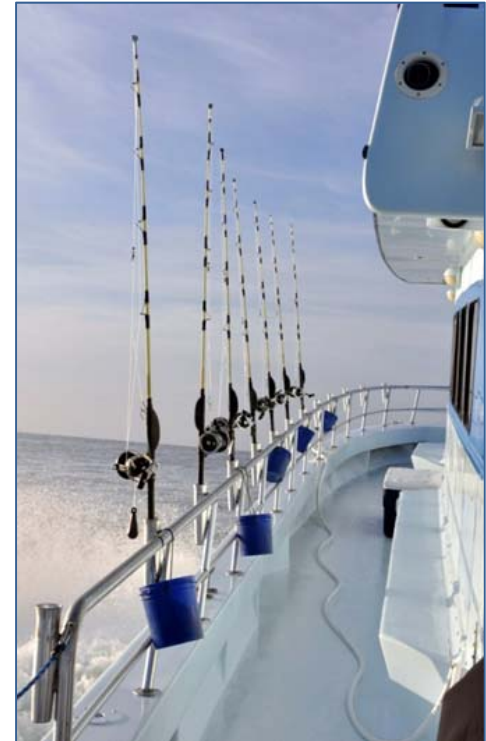
- Site register is available for state survey agents to modify.
- No private access sites are sampled.
- Number and size of discarded fish is largely self-reported.
- Out-of-state anglers are sampled.



APAIS

For-Hire Surveys

- Small vessel for-hire anglers are sampled.
- For-hire charter and headboats are surveyed separately weekly.
- Electronic logbooks are being tested in the FHS.



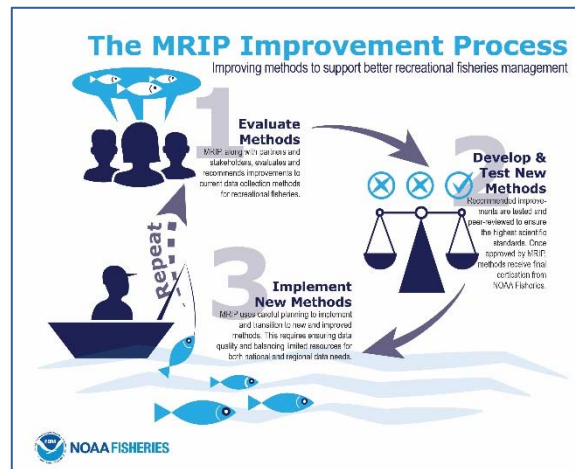
APAIS Highlighted and Abbrv. Recommendations

Highlighted and Abbrv. Recommendations:

- Investigate small area estimation procedures for obtaining estimates for small domains.
- Conduct pilot studies to determine the optimal method for collecting accurate information on total catch differences between public and private access points.
- Conduct a study for comparing anglers reporting catch using an app with anglers reporting catch through a traditional interview.
- Develop validation programs for the estimation of discards at sea by recreational anglers and integrate these efforts with other NMFS initiatives concerning estimation of discard mortality.

Continued Scientific Evaluation, Review, and Certification

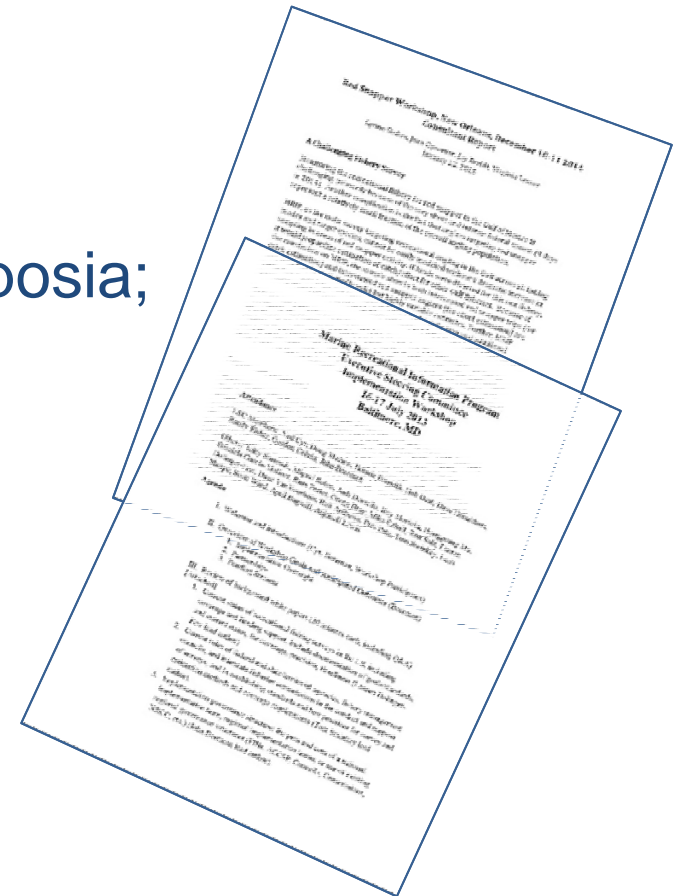
- MRIP has invested in a well-structured process for continued scientific evaluation, review, and certification.
- This allows for highly specialized, technical and scientific support for the development, review, and certification of regional- or state-specific surveys.



Continued Scientific Evaluation, Review, and Certification (cont'd)

MRIP has benefited significantly from:

- Increased staffing;
- Workshops, Conferences, and Symposia;
- Consultants;
- Pilot Studies Program
 - Including studies on new technologies;
- Certification Process; and
- Training of Interviewers.



Continued Scientific Evaluation, Review, and Certification Highlighted and Abbrev. Recommendations

Highlighted and Abbrev. Recommendations:

- If possible, expand capacity in the pool of consultants (both in number and in expertise) to:
 - Expand provision of technical advice;
 - Expand areas of expertise (e.g., in cognitive issues); and
 - Streamline certification process.

Degree of Coordination

- Multi-jurisdictional nature of marine fisheries management presents a myriad of coordination challenges to data collection, data management, stock assessment, and ultimately fisheries management.
- MRIP has made significant progress in its responsiveness to regional and state needs:
 - Improved coordination through FINs and ACCSP
 - MRIP certification → integration of more specialized surveys into the MRIP survey framework.
- MRIP has continued to maintain a national perspective for data collection → certification process for regional- or state-specific surveys.

Degree of Coordination

Highlighted and Abbrev. Recommendations

Highlighted and Abbrev. Recommendations:

- Evaluate whether the design of MRIP is compatible with the needs of in-season management for ACL's.
- Continue and expand the investments made in coordination, and technical support with regional and state partners.
- Increase efforts to clearly articulate to regional and state partners, anglers, and other user groups, the meaning, significance, and importance of the current approach used to implement its national perspective.

Communications

- MRIP has made significant advances in improving its communications and outreach strategy → website and communications with state, and regional partners.
- Significant communications challenges remain unaddressed → anglers, stock assessment and management groups.
- This assessment includes the important idea that communication is at least a bilateral endeavor involving communicating to and listening to the targeted audience.



Communications (cont'd)

- The committee recognizes the challenge with undertaking a broad portfolio of communication with current staff capacity.
- MRIP established a large team of statistical experts, both in-house and as consultants, to help with the surveys.
 - A similarly experienced team of experts has not been established to support MRIP communication and outreach activities.

Communications

Highlighted and Abbrev. Recommendations

Highlighted and Abbrev. Recommendations:

- NMFS should develop and lead an integrated communications strategy with partners to explain and seek support for fisheries management, within which the role of MRIP is clearly defined.
- MRIP should allow the for-hire captains a method to review their own data submittals to provide further quality assurance of these data and assuage concerns for an important fishing sector.



Plans for Maintaining Continuity

- There is a need for continuity in the recreational fisheries data, because changes in the time series can create challenges in assessment, management, and allocation.
- MRIP calibration workshops recognized that calibration is critical. However, calibrations are not straightforward due to limited side-by-side estimation using previous and current methodology for almost all areas.
- Future calibration efforts will be most useful if accompanied with advice on the implications of the calibration method to stock assessment and management reference points.

Plans for Maintaining Continuity Highlighted and Abbrev. Recommendations

Highlighted and Abbrev. Recommendations:

- MRIP should continue development of a statistically sound calibration methodology as improvements to the surveys are incorporated. In the interim, the existing ratio-based calibration should be continued.
- For more complex, age-based assessments, scientists should employ alternative catchability functions as a means to accommodate potential issues in the calibration of MRFSS data to MRIP data.
- For non-age-based assessments, scientists should exercise caution in the interpretation of trends in catch data.

Concluding Points

- Redesign of MRIP has yielded impressive progress in providing more reliable catch data to fishery managers.
- Major improvements to the statistical soundness of the survey designs were achieved by reducing sources of bias, increasing sampling efficiency, and increased coordination with partners and expert consultants.
- Some additional challenges remain, including those associated with nonresponse, electronic data collection, and communication and outreach to some audiences.

Questions

Image Sources: Florida Fish and Wildlife Conservation Commission; NOAA (www.countmyfish.noaa.gov); and the committee.

Statement of Task

An ad hoc NRC committee will assess progress in updating marine recreational fisheries data collection through the Marine Recreational Information Program (MRIP) referencing the recommendations in the 2006 NRC report Review of Recreational Fisheries Survey Methods. Based on this assessment, the committee will identify potential areas for improvements or changes of direction that would substantially increase data quality for fisheries management, taking into consideration potential loss of information from disruption of the time series. The committee's report will:

1. Describe the approach and effectiveness of steps taken by NMFS to improve the quality and accuracy of marine recreational fisheries catch, effort, and participation statistics (in response to NRC 2006), including, but not limited to:
 - a. Establishing registries of anglers and for-hire vessels and using the registries appropriately as sample frames for recreational catch and effort surveys;
 - b. Improving the effectiveness and appropriateness of sampling and estimation procedures, applicability to various kinds of management decisions, and usefulness for social and economic analyses; and
 - c. Providing for ongoing technical evaluation and modification, as needed to meet emerging management needs and changes in communication technologies (e.g. smart phone apps, internet-based social networking).
2. Assess the strength of the scientific process, including the engagement of external scientific and technical expertise, used by NMFS in developing, testing, reviewing, and certifying new sampling and estimation procedures.

Statement of Task

3. Evaluate the communication of information on survey method development, survey method descriptions, and survey results to stakeholders and application of stakeholder input in the design and implementation of new sampling and estimation procedures. Stakeholders include at least three distinct sub-groups (with some overlap among them):
 - a. Data collection partners, such as the Atlantic Coast Cooperative Statistics Program (ACCSP) and the Fishery Information Networks (FINs);
 - b. Data customers (parties that use NMFS data for stock assessments, management actions, social and economic studies);
 - c. Entities affected by the estimates (anglers and recreational fishing businesses, commercial fisheries, non-consumptive users, etc.);
4. Determine if the degree of coordination among federal, state, and territorial survey programs is sufficient to provide a clear, national perspective on marine recreational fisheries; and
5. Evaluate plans for maintaining continuity of data series to minimize disruption of management programs and stock assessments. This will include evaluation of the strategy for moving from the phone based survey to a mail and web-based survey as a means to estimate fishing effort.