



REPORT TO CONGRESS

MARINE RECREATIONAL INFORMATION PROGRAM: RESPONSE TO NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE 2017 RECOMMENDATIONS

*Developed pursuant to: The Modernizing Recreational Fisheries Management Act of 2018
(Public Law 115-405)*

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THE MODERNIZING RECREATIONAL FISHERIES MANAGEMENT ACT OF 2018,
PUBLIC LAW 115-405 (12/31/18), INCLUDED THE FOLLOWING LANGUAGE:

Section 201(b). NAS REPORT RECOMMENDATIONS.

The Secretary of Commerce shall take into consideration and, to the extent feasible, implement the recommendations of the National Academy of Sciences in the report entitled “Review of the Marine Recreational Information Program (2017),” and shall submit, every 2 years following the date of enactment of this Act, a report to the appropriate committees of Congress detailing progress made implementing those recommendations...

THIS REPORT RESPONDS TO THE ABOVE REPORT REQUIREMENT IN THE ACT AND
TO THE COMMITTEE’S REQUEST.

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I. EXECUTIVE SUMMARY

In 2015, the National Oceanic and Atmospheric Administration’s (NOAA) National Marine Fisheries Service (NMFS) contracted with the National Academies of Sciences, Engineering, and Medicine (NASEM) to undertake a critical, independent review of its Marine Recreational Information Program (MRIP), the national Federal-regional-state partnership program that collects data for determining the catch of marine recreational fisheries. In 2017, NASEM issued its report, concluding that NOAA made substantial progress in improving survey and estimation methods and including 28 recommendations for further improvements. NOAA has made significant progress in addressing those recommendations, which is detailed in this report.

II. 2017 REVIEW OF THE MARINE RECREATIONAL INFORMATION PROGRAM (MRIP) BY THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE (NASEM)

NASEM was contracted by NMFS in 2015 to undertake a critical, independent, and comprehensive follow-up review to its 2006¹ independent, expert analysis of the agency’s saltwater recreational information collection efforts. The Statement of Task for the review, initiated in 2015, included the following:

“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 NOAA Fisheries 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).

¹ Committee on the Review of Recreational Fisheries Survey Methods, Ocean Studies Board, Division of Earth and Life Studies, National Research Council of the National Academies. *Review of Recreational Fisheries Survey Methods*. 2006. The National Academies Press. 187+ xiv pp.

2. Assess the strength of the scientific process, including the engagement of external scientific and technical expertise, used by NOAA Fisheries in developing, testing, reviewing, and certifying new sampling and estimation procedures.
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 NOAA Fisheries data for stock assessments, management actions, and 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.”

The Committee completed its review and released its findings and recommendations in a final report² issued in January 2017. The report included 28 recommendations in six topic areas, including: Sampling and Statistical Estimation for the Fishing Effort Survey; Sampling and Statistical Estimation for the Angler Intercept Survey; Framework for Continued Scientific Evaluation, Review, and Certification; Degree of Coordination; Communication and Outreach with Stakeholders; and Plans for Maintaining Continuity.

The principal conclusions and recommendations of the report can be summarized as follows:

- NASEM recognized that MRIP has greatly enhanced staff expertise and appropriately engaged external experts to facilitate development of survey design improvements by NMFS and its partners.
- Among other things, NASEM commended the agency for:
 - Improving the statistical soundness of survey designs by reducing sources of bias and increasing sampling efficiency.
 - Making significant advances in improving its communications and outreach strategy in the past 10 years, particularly with the program’s website and its communications with the fishery commissions and state resource agencies.

² Committee on the Review of the Marine Recreational Information Program, Ocean Studies Board, Division of Earth and Life Studies, the National Academies of Science, Engineering and Medicine. *Review of the Marine Recreational Information Program*. 2017. The National Academies Press. 185+ xii pp.

- Making progress evaluating and testing new technologies (such as smartphones and tablets) as a way to implement electronic reporting, avoid or decrease data transcription errors, and increase timeliness and reliability of recreational fisheries data collection.
- The review noted that current methods used in the Access Point Angler Intercept Survey (APAIS) are a vast improvement over the previous sampling and estimation procedures, and reflect state-of-the-art methods in survey sampling.
- The methodologies associated with the current Fishing Effort Survey, including the address-based sampling mail survey design, are major improvements from the original Coastal Household Telephone Survey that used random-digit-dialing to contact anglers. This is a reflection of the immense effort on behalf of agency staff, contractors, and consultants.
- NASEM proposed 28 recommendations for further improvements to the survey and estimation methods, stakeholder communications, and program support and coordination with partners.

III. NMFS RESPONSE TO THE NASEM RECOMMENDATIONS

NMFS has undertaken numerous studies and program initiatives to address the NASEM recommendations. Appendix A provides a complete description of the status and actions taken, in progress, and planned for each of the 28 recommendations. As indicated therein, each of the recommendations is being actively addressed as of September 2021.

Appendix A

2017 NASEM Recommendations and NMFS Actions Taken in Response³

NAS Recommendation	3.1 Recommendation: NOAA Fisheries should continue to evaluate the cognitive properties of a two-month recall period to confirm or update research on this topic conducted in the 1970s.
Projects/Actions Completed and Dates	1. Completed “A Comparison of Recall Error in Recreational Fisheries Surveys with One- and Two-Month Reference Periods” (2018).
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: <i>Research and Evaluation Team (RET)</i></p> <p>1. Manuscript published in <i>North American Journal of Fisheries Management</i>, November 2018. Fishing Effort Survey (FES) estimates were not significantly different from estimates derived from one-month waves. However, estimates based upon a single month may be susceptible to telescoping and over-reporting of fishing activity.</p>

NAS Recommendation	3.2 Recommendation: NOAA Fisheries should consider evaluating a prospective data collection methodology, such as asking people in advance to document fishing trips planned over the next two months, to reduce concerns about angler recall.
Projects/Actions Completed and Dates	1. Completed “Testing a New Approach to Recreational Saltwater Fishing Participation Estimation” (October 2016).
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: <i>RET</i></p> <p>1. Results from participation study found no significant differences between longitudinal and cross-sectional estimates of annual participation.</p> <p>2. As noted in the RET Review of the iAngler and iSnapper Reporting Programs, panel designs have a unique set of challenges including attrition and panel conditioning. In that report, the RET recommended that, “considering the positive aspects of the FES design ... an extensive evaluation of alternative methods for estimating general shore and private boat fishing effort is not recommended.” The RET further suggested “that MRIP limit consideration of panel designs to specific research questions for which panel designs are uniquely suited.”</p>

³ Note: The status of Projects/Actions Completed to Date and of Projects/Actions in Progress/Planned and Dates is as of September 1, 2021.

	<ol style="list-style-type: none"> 3. The RET does not recommend further evaluation of prospective/panel designs for estimating shore and private boat fishing effort. 4. Panel/prospective designs may be appropriate for evaluating specific research questions.
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NAS Recommendation	3.3 Recommendation: NOAA Fisheries should consider conducting targeted annual nonresponse studies as a standard component of MRIP. The purpose of these studies would be to continually monitor correlates of nonresponse and nonresponse bias in an effort to control its damaging effects on data quality.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Completed nonresponse follow-up study during FES field testing (2013).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. A nonresponse follow-up study was conducted in 2020 waves 4-5⁴ to evaluate nonresponse bias in the FES.
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. FES nonresponse follow-up studies found no significant differences in fishing activity between FES and nonresponse samples. 2. Evaluation of nonresponse bias should be operationalized in all MRIP surveys through administration of regular follow-up studies, modeling and sample weighting approaches.

NAS Recommendation	3.4 Recommendation: As recommended in the 2006 report, NOAA Fisheries is encouraged to continue research on survey panels, where a portion of the sampled households is retained for one or more interviews, for the Fishing Effort Survey alone or for an effort-catch combined study. The purpose of the survey panel would be to assess trends and any anomalies in those trends, to assess any improvements in data collection efficiency through increased participation, and possibly to lower measurement error associated with, for example, trip recall with a more engaged sample of anglers.
Projects/Actions Completed and Dates	
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: RET</p> <p>See comments for 3.2.</p>

NAS Recommendation	3.5 Recommendation: NOAA Fisheries should evaluate the benefits of collaboration with another Federal survey (e.g., the American Time Use
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⁴ Sample Waves for the Fishing Effort Survey are 2-month intervals. Waves 4 and 5 encompass July-October.

	Survey) to include items related to fishing effort. These external estimates could provide corroboration of the fishing effort estimates and possibly provide useful variables for an enhanced Fishing Effort Survey weight calibration model to address sampling and non-sampling biases.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Estimates from the American Community Survey and Current Population Survey are used as population control totals in the FES weighting calibration model (2017). 2. Utilized co-indicators of fishing effort (e.g., boat registrations, rod and reel imports, charter boat effort, gasoline sales) to model post-recession (2010-2017) Coastal Household Telephone Survey CHTS effort.
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. Weighting calibration, specifically raking, ensures that FES samples are representative of the household population with respect to demographic variables included in the calibration model. 2. Effort covariates were collected from a variety of sources, including the for-hire survey, the Marine Manufacturers Association, the U.S. Energy Information Administration, and the U.S. International Trade Commission. In contrast to CHTS estimates, which declined steadily following the mid-2000s recession, effort covariates all recovered to pre-recession levels following a brief decline.

NAS Recommendation	3.6 Recommendation: As recommended in the 2006 report, electronic data collection should be evaluated further as an option for the Fishing Effort Survey, including smartphone apps, electronic diaries for prospective data collection, and a web option for all or just panel members.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. iAngler project (2018). 2. iSnapper project (2018). 3. Commissioned “Review of Options for Electronic Reporting in Survey Research Applied to Estimating Fishing Effort”—Brick report (August 2018). 4. Completed Marine Recreational Information Program, Research and Evaluation Team Review of the iAngler and iSnapper Reporting Programs (March 2019). 5. Completed a test of a web-push design for the FES (June 2020).
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. The web-push design resulted in response rates that were 7-11 percentage points lower than FES response rates. In addition to increasing the risk for nonresponse bias, lower response rates

	would increase data collection costs by approximately 15 percent on a per-complete basis. The web-push and FES designs were approximately equal in terms of data editing rates, while the web-push design had a longer median response time than the FES. At present, the current FES design is more cost effective and provides more timely survey results than the web-push design.
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NAS Recommendation	3.7 Recommendation: Current or augmented variables on the address-based sampling frame should be evaluated to improve the efficiency of the Fishing Effort Survey weighting methodology.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Augment FES sample frame with fishing license data (2015). 2. Augment FES sample with boat registration data (2018).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. We are currently evaluating the FES sampling and estimation designs to identify opportunities to improve sampling efficiency.
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. Fishing license status is used as a stratification variable, and both license status and boat registration are used in non-response weighting adjustments. We will continue to explore additional opportunities to incorporate auxiliary variables in sampling, weighting and estimation designs.

NAS Recommendation	3.8 Recommendation: Other variance estimation methods should be evaluated for fishing effort estimates to account for weight adjustments, especially those associated with nonresponse. These include replication methods and the so-called reverse approach.
Projects/Actions Completed and Dates	
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. A project involving variance estimation procedures has been initiated in 2020. The first phase is working to develop replication-based methods for use with the MRIP survey public-use datasets. Later phases will look at variance estimation methods in the standard estimation procedures.
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. MRIP will continue to evaluate alternative estimation methods for all MRIP surveys.

NAS Recommendation	4.1 Recommendation: The appropriateness of probability proportional-to-size sampling should be evaluated and alternative sampling designs should be considered if needed. For example, with a stratified design (based on the site pressure as a stratification variable), one may avoid very small selection probabilities, which in turn, may lead to more stable estimates. Otherwise, methods dealing with influential values should be considered. These methods
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	include weight smoothing (Beaumont, 2008) and weight trimming procedures (Potter, 1990).
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Apply post-stratification of primary stage weights based on counts of PSUs from sample frame (2013). 2. Apply NAEP weight trimming procedure to final stage weights to minimize impact of influential weights (2014).
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. We will continue to evaluate sampling designs and weight adjustment procedures.

NAS Recommendation	4.2 Recommendation: For data users requiring domain estimates at a fine level, design-based estimators tend to exhibit very large variances. To address this, small area estimation procedures should be investigated for obtaining estimates for small domains.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. MRIP statistical consultants completed an analysis of several moving average multi-year data aggregation approaches to improving estimation for rare-event species in 2020.
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. The rare-event species project will be focused on next steps based on reported findings by the MRIP statistical consultants.
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. MRIP can develop a framework for small-area estimations to support customers of survey data. However, one model will not fit all uses. 2. Rare-event species project was initiated to address imprecise estimates for species rarely encountered in the Access Point Angler Intercept Survey (APAIS).

NAS Recommendation	4.3 Recommendation: NOAA Fisheries should conduct pilot studies to determine the optimal method for collecting accurate information on total catch differences between public and private access points. For example, NOAA Fisheries could add a question to the Fishing Effort Survey questionnaire to ask whether the anglers have used a private site or a public-access site. Geographic maps used to identify public access points within the state (see Chapter 3) could help distinguish public from private sites.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. FES follow-up study (2016).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. FES boat survey was implemented in MD, FL and AL during wave 3, 2021. Results will be available in early 2022.

Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. FES follow-up study: data collected via follow-up mail and online survey. Response rates were low and sample sizes were too small to evaluate non-coverage error in APAIS. 2. The survey I utilized the FES sampling design and will estimate the distribution of boat trips by access type, fishing area, and boat type.
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NAS Recommendation	<p>4.4 Recommendation: Interviewers administering the Access Point Angler Intercept Survey should attempt to collect some paradata, to help in reducing the potential bias due to missing interview data.</p>
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. APAIS implementation of Computer Assisted Personal Interviewing (CAPI) (2019).
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Teams Responsible: RET, Survey Operations Team (SOT)</p> <ol style="list-style-type: none"> 1. APAIS replaced paper forms with CAPI, which will facilitate questionnaire changes and the collection of additional data, including paradata. Tablets currently collect paradata including GPS location, start/stop times, and interview duration. CAPI will be implemented for Gulf coast states in 2021.

NAS Recommendation	<p>4.5 Recommendation: There is a growing interest from anglers to report their catches electronically (use of tablets and smartphones). NOAA Fisheries should conduct a study for comparing anglers reporting catch using an app with anglers reporting catch through a traditional interview.</p>
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. iAngler (2018). 2. iSnapper (2018). 3. RET Review of the iAngler and iSnapper Reporting Programs (March 2019). 4. Snapper Check (2018). 5. Tails n' Scales (2018).
Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: RET</p> <ol style="list-style-type: none"> 1. The RET review cited in #3 of the Recommendation 4.5 Project/Actions Completed and Dates documents benefits and limitations of smartphone applications for collecting recreational fishing data. In summary, non-probability designs, including opt-in angler apps, are not recommended for estimating population statistics such as total fishing effort, catch, or catch-per-trip. 2. Snapper Check and Tails n' Scales include electronic reporting and

	validation via dockside sampling.
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NAS Recommendation	4.6 Recommendation: MRIP should develop and incorporate validation programs for the estimation of the numbers of fish discarded at sea by recreational anglers. These efforts should integrate with other NOAA Fisheries initiatives concerning estimation of discard mortality.
Projects/Actions Completed and Dates	1. Recreational Released Catch Workshop (2017) ⁵ .
Projects/Actions in Progress/Planned and Dates	
Comments	Team Responsible: <i>RET</i> 1. MRIP, ACCSP, and GulfFIN held a collaborative workshop to identify methods to validate self-reported discard data. Workshop reaffirmed importance of monitoring discards as well as challenges.

NAS Recommendation	4.7 Recommendation: MRIP should expand this program to cover the majority of the large charter and for-hire fleets, through outreach training in electronic logbook use, and implementation of software to run off standard tablets or smartphones.
Projects/Actions Completed and Dates	1. Implement Pilot Study to Test the Feasibility of Logbook Reporting in Gulf of Mexico (2013). 2. Use of APAIS Intercepts to Validate Logbooks and Calculate Combined Estimates of Catch—SC for-hire logbook validation (March 2018). 3. For-Hire Workshop (2019).
Projects/Actions in Progress/Planned and Dates	1. MRIP is supporting development and the 2021 implementation of Southeast For-Hire Electronic Reporting program run by the NOAA Fisheries Southeast Regional Office.
Comments	Teams Responsible: <i>RET, SOT</i>

NAS Recommendation	4.8 Recommendation: MRIP should invest some time and effort in providing and organizing up-to-date documentation, describing in detail each step of both the Fishing Effort Survey and Access Point Angler Intercept Survey methodologies and any changes that are made to them.
Projects/Actions Completed and Dates	1. “MRIP Survey Design and Statistical Methods for Estimation of Recreational Fisheries Catch and Effort Data (2019).” 2. 2019 APAIS Procedures Manual (2019). 3. FES Annual Report (2019, 2020).

⁵ www.gsmfc.org/pubs/fin/released_catch_workshop/fin-rcw.php
Recreational Released Catch Workshop, Nov. 6-7, 2017, Gulf States Marine Fisheries Commission, Number 275.

Projects/Actions in Progress/Planned and Dates	
Comments	<p>Team Responsible: SOT</p> <p>Survey documentation is available on the MRIP website.</p>

NAS Recommendation	<p>5.1 Recommendation: MRIP should develop a strategy to better articulate the complexities, costs, and timelines needed for implementation of new and emerging technologies in recreational fisheries data collection and monitoring. This communication strategy should focus not only on regional partners but also address questions and concerns expressed by private anglers and for-hire operators. It should involve both the MRIP communications team and the NOAA Fisheries Office of Communications.</p>
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Developed poster that was prominently displayed at the fourth National Saltwater Recreational Fisheries Summit (March 2018). 2. Added a page on the Electronic Reporting Action Plan to the new MRIP brochure, and incorporated information on the plan in presentations to a variety of partners and stakeholders. 3. Published “Developing For-Hire Electronic Logbooks: The MRIP Road Map,” a fact sheet that describes the program’s efforts to replace the random sampling of charter vessels with a complete census of all for-hire trips, as reported by vessel operators through electronic logbooks (April 2019). 4. Published “Electronic Reporting At-a-Glance,” a web page that describes the program’s efforts to advance the use of electronic technologies and outlines the benefits and limitations of using electronic technologies to collect data from private anglers. Worked with the NOAA Fisheries Office of Communications to promote this web page during a National Fishing and Boating Week social media campaign (April-June 2019). 5. Executed communications around “Electronic Reporting Options for the Marine Recreational Information Program’s Fishing Effort Survey,” a report to Congress that described the program’s work to explore the suitability of electronic data collection as a supplement to recreational fishing surveys (July 2019). 6. Executed communications around “Marine Recreational Information Program, Research and Evaluation Team Review of the iAngler and iSnapper Reporting Programs,” a report that evaluates the role of opt-in angler reporting apps in collecting recreational fishing data (Oct. 2019). 7. Executed communications around the program’s work to evaluate an online reporting option for the mail Fishing Effort Survey (2020). 8. Created a regional rack card that answers frequently asked questions about the Southeast For-Hire Electronic Reporting Program (Aug. 2021). 9. Provided the Marine Fisheries Advisory Committee (MAFAC) Electronic Reporting Task Force with information about the state of

	<p>science, research, and analyses related to private angler electronic reporting to ensure the Task Force's recommendations reflect what is known about the complexities, costs, and timelines associated with implementing new and emerging electronic reporting technologies (2020).</p>
<p>Projects/Actions in Progress/Planned and Dates</p>	<ol style="list-style-type: none"> 1. Execute communications around the program’s work with the South Atlantic Fishery Management Council to explore what motivates anglers to use mobile apps, what anglers are willing to report through mobile apps, and what impacts the recruitment and retention of app users (TBD). 2. Conduct outreach to for-hire owners and operators in the Southeast regarding the implementation and transition to new Federal for-hire electronic reporting requirements (ongoing). 3. Ensure Highly Migratory Species (HMS) permit holders are aware of the relationship between these new requirements and existing HMS catch reporting requirements (ongoing). 4. In collaboration with the MRIP Alaska Regional Implementation Team, conduct outreach to charter and guide operators in Alaska around eLogBook requirements, including “how-to” videos and demonstrations at industry meetings. Improve understanding and use of eLogBooks, especially where use will be mandatory to provide Chinook salmon harvest data (ongoing).
<p>Comments</p>	<p>Teams Responsible: Program Management Team (PMT), Communications and Education Team (CET)</p>

<p>NAS Recommendation</p>	<p>6.1 Recommendation: Evaluate whether the design of MRIP for the purposes of stock assessment and the determination of stock management reference points is compatible with the needs of in-season management of annual catch limits. If these needs are incompatible, the evaluation should determine an alternative method for in-season management.</p>
<p>Projects/Actions Completed and Dates</p>	<ol style="list-style-type: none"> 1. This recommendation was adopted in Section 202 of the Modernizing Recreational Fisheries Management Act (MFA), Public Law 115-405 (12/31/18). In September, 2019, NOAA Fisheries contracted with the National Academies of Science, Engineering, and Medicine (NASEM) to conduct the review required in Section 202 to "evaluate, and report how the design of MRIP, for the purposes of stock assessment and the determination of stock management reference points, can be improved to better meet the needs of in-season management of annual catch, and what actions the Secretary, Councils, and States could take to improve the accuracy and timeliness of data collection and analysis to improve the Marine Recreational Information Program and facilitate in-season management."
<p>Projects/Actions in Progress/Planned and Dates</p>	<ol style="list-style-type: none"> 1. The NASEM Study was completed in August, 2021, and briefings for key MRIP partners, data customers, and stakeholders are in progress in Sept. – Nov. of 2021.

	<ol style="list-style-type: none"> 2. NOAA will prepare a Report to Congress that addresses how the agency will respond to the study recommendations in the first quarter of CY 2022.
<p>Comments</p>	<p>Team Responsible: PMT (with Office of Sustainable Fisheries (OSF))</p>

<p>NAS Recommendation</p>	<p>6.2 Recommendation: MRIP should continue and expand the investments made in coordination, financial, logistical and technical support with regional Interstate Marine Fisheries Commissions and state partners.</p>
<p>Projects/Actions Completed and Dates</p>	<ol style="list-style-type: none"> 1. MRIP Strategic Plan Goals 5 (Operate Collaboratively) and 6 (Meet Program Resources and Funding Needs) establish a comprehensive suite of objectives and tactics related to this recommendation. The implementation of actions to address the relevant tactics are included in MRIP Annual Implementation Plans. 2. Pursuant to the requirements of Section 202 of the MFA, MRIP developed a plan for establishing state partnerships, in consultation with States, FINs, and MRIP Regional Implementation Teams (Dec. 2020). 3. In FY 20, Congress directed NOAA Fisheries to provide not less than \$3.0M of appropriated funds, within funds available, to support collaborative programs focused on improving states’ recreational fishery data collection, as articulated in sections 201 and 202 of Public Law 115-405 (the MFA). 4. In FY 20, NOAA Fisheries executed a \$3.0M Modern Fish Act investment plan that is responsive to state priorities identified in MRIP Regional Implementation Plans, and that addresses Senate priorities including support for state angler ER initiatives. Funds were allocated to States through direct cooperative agreements with the regional Fishery Information Networks (ACCSP, GulfFIN, and Pacific RecFIN). Increasing sample sizes in ongoing surveys to improve the precision of catch estimates for ACL-managed fisheries was identified as a high priority in each of the regional plans. In addition, support for specialized state surveys that provide options for electronic reporting by private anglers was a high priority in the Gulf plan. The plan and funding distribution described below were maintained in FY 21. Funds were allocated regionally as follows: <ol style="list-style-type: none"> a. Atlantic: \$0.9M to improve precision of estimates in targeted fisheries. b. Gulf of Mexico: \$1.2M to restore base APAIS sample sizes and support State specialized survey programs: <ol style="list-style-type: none"> i. \$0.9M to restore base APAIS and supplement LA Creel. c. \$0.3M to support specialized State survey programs that provide angler ER options (GRFS, Snapper Check, Tails n’ Scales) in Florida, Alabama, and Mississippi. d. Pacific: \$0.9 to restore base sample sizes for State programs. 5.

Projects/Actions in Progress/Planned and Dates	1.1.
Comments	Teams Responsible: PMT, Regional Implementation Council (RIC)

NAS Recommendation	6.3 Recommendation: MRIP should continue to support effective communication and coordination with Pacific coast states. Coordination should be focused not only on continuing the logistical and technical support needed for survey improvements and subsequent MRIP certification, but also to better articulate the benefits of a flexible regional approach to data collection, and interstate survey coordination for broad-scale stock assessment and fisheries management.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> The Pacific RecFIN Regional Implementation Plan was completed and approved by MRIP in 2020. This plan will become the basis of future MRIP funding and technical support for the Pacific coast states recreational surveys (see 6.2, for example).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> MRIP is working with the RecFIN members to complete certification of the states' RecFIN surveys in FY 22.
Comments	Teams Responsible: PMT, Pacific Regional Implementation Team (RIT)

NAS Recommendation	6.4 Recommendation: MRIP should increase efforts to clearly articulate to regional and state partners, as well as anglers and other user groups, the meaning, significance, and importance of the current approach used to implement its national perspective on recreational fishing surveys. MRIP should also be clear that this national approach incorporates the appropriate amount of flexibility required to meet unique regional and state needs. The benefits of a cohesive, integrated, and statistically robust recreational fisheries survey framework to stock assessments and regional fisheries management should be made clear.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> <ol style="list-style-type: none"> Published brochure to explain how the program collects recreational fishing data and calculates catch and effort estimates (March 2019). Updated the brochure to answer frequently asked questions about our work (August 2021). Supported FES Response Team, producing communications materials to address questions and concerns about estimates produced by the FES (March 2019 to present). Published a web story and e-newsletter on the Pacific Islands Region evaluating improvements to Hawaii's Marine Recreational Fishing Survey (April 2020). Collaborated with Mid-Atlantic Fishery Management Council staff on an MRIP web page for the council's website (Aug. 2020).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> Continue to develop "MRIP 101" presentations to be delivered at council member trainings, Marine Resource Education Program sessions, and other venues, tailoring the content to each audience

	<p>(Ongoing).</p> <ol style="list-style-type: none"> Continue to support FES Response Team, producing communications materials to address questions and concerns about estimates produced by the FES (Ongoing). Work with Regional Implementation Teams to identify communications and outreach opportunities and meet the communications and outreach needs identified in their Regional Implementation Plans (Ongoing). Develop leadership backgrounders on high-profile topics such as calibration, estimation, outliers, rare-event species, and survey design certification (Ongoing). Support staff attendance at fishery management council, scientific and statistical committee, and marine fisheries commission meetings, ensuring presentation requests are met (Ongoing).
Comments	Team Responsible: CET

NAS Recommendation	7.1 Recommendation: NOAA Fisheries should develop and lead an integrated communications strategy involving state and Federal partners to explain and seek support for the management of the nation’s fisheries within which the role of MRIP is clearly defined. The MRIP communication plan should be an element – albeit for species in which removals are dominated by recreational fisheries, an essential component – of such a broader, integrated overall communication plan.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> The MRIP annual strategic communications plan, which includes strong collaboration with Federal and state partners, has been updated, and serves as the recreational data collection component of the NOAA Fisheries national communications plan (October 2020, September 2021). Close coordination and collaboration with the NOAA Fisheries Office of Communications and the National Policy Advisor for Recreational Fisheries through monthly meetings and as needed contact (2020, ongoing).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> NOAA Fisheries continues to consider and refine communications elements of the broader agency communication strategy around recreational fisheries and of the National Recreational Engagement Initiative (NREI). Continue to develop MRIP annual strategic communications plan in alignment with the NOAA Fisheries national communications plan (Ongoing).
Comments	Teams Responsible: NOAA Fisheries Office of Communications (OC), NOAA Fisheries Office of the National Policy Adviser for Recreational Fisheries (RecFish) (CET)

NAS Recommendation	7.2 Recommendation: MRIP should further develop its communications plan,
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	include a specific needs analysis and develop a specific and detailed implementation plan. Greater emphasis should be placed on interactive (two-way) communication, which may involve spending time in the field with anglers, than is currently in the plan.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Completed a stakeholder needs assessment (Q1 2017). 2. Developed and implemented annual strategic communications plans (2018, 2019), and developed and implemented discrete communications plans for high-profile actions, such as an FES information campaign in the South Atlantic and Gulf of Mexico (2019, 2020). 3. Developed and tested a Partner Needs and Satisfaction Assessment, which will assess the strength of our relationship with partners, their understanding of our program, and satisfaction with our communications channels and the products we develop (June 2020). 4. Completed customer satisfaction assessment to assess customer engagement and satisfaction with our communications and outreach efforts (July 2020). 5. Completed the first phase of the recreational angler social network analysis, examining the information-sharing habits of saltwater recreational anglers, as well as their opinions about recreational fishing data collection and management (July 2020).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. Complete Partner Needs and Satisfaction Assessment (2020). Based on the results, develop a communications and outreach toolkit (2021). 2. Continue to develop and implement annual strategic communications plans with a focus on two-way dialogue with key audiences, as well as discrete communications plans for high-profile actions (Ongoing). 3. Complete and implement FY 21 MRIP strategic communications Plan (January 2021). 4. Complete the second phase of the recreational angler Social Network Analysis, implementing a qualitative in-person survey to examine angler information networks. Incorporate findings and recommendations from the recreational angler social network analysis into communications strategies, as appropriate (Ongoing). 5. Develop materials to support an onboarding process for new customers, such as webinars and/or user guides (2021). 6. Implement the discrete communications plans newly developed in FY 20 relating to the adoption of the MRIP Survey and Data Standards and the impact of COVID-19 on recreational fishing data collection (Ongoing).
Comments	Team Responsible: CET
NAS Recommendation	7.3 Recommendation: The success of MRIP depends to a large degree on clear, accurate, and timely communications; and on engaging all the various stakeholder groups, including anglers. Therefore, whether as permanent full-time equivalents or as consultants, MRIP should consider expanding its communications team to support the required needs analysis and

	implementation plans identified by the committee. One way of achieving this expansion would be to partner with national and regional organizations, such as the Sea Grant colleges, who already have communications capacity and expertise, and who would be able to identify opinion leaders and constituencies.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. Established the Greater Atlantic and Southeast Regional Communications Working Groups to involve fisheries management councils, interstate fisheries commissions, fisheries information networks, and other partners in the development and execution of our communications and outreach initiatives (Oct. 2017). 2. Expanded membership of the Communications and Education Team to include representatives from the West Coast Regional Office and Southeast Fisheries Science Center (Feb. 2020) and Northeast Fisheries Science Center (March 2020).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> 1. Continue to engage national and regional partners through the Communications and Education Team and its working groups, building connections, improving information flow, and engaging others in strategic communications and outreach (Ongoing). 2. Expand the CET, when appropriate, to include representatives from additional regions (Ongoing). 3. Continue to leverage regional communications working groups to execute Regional Implementation Plan priorities and related communications and outreach efforts, establishing additional regional working groups as appropriate (Ongoing).
Comments	Team Responsible: CET

NAS Recommendation	7.4 Recommendation: NOAA Fisheries should develop a system for indexing and cross-referencing documentation of survey methods and statistical analysis. Because of the evolving nature of the program that includes many different elements, maintaining the organization of the technical documents is a challenge. NOAA Fisheries should increase its efforts to ensure the documentation includes key pieces of information. For example, NOAA Fisheries should ensure that the statistical basis for the stratified and total estimates of total effort, catch per unit effort, and their variances for all fisheries and areas are readily available and consistent among current documents.
Projects/Actions Completed and Dates	<ol style="list-style-type: none"> 1. “MRIP Survey Design and Statistical Methods for Estimation of Recreational Fisheries Catch and Effort Data” (2019).
Projects/Actions in Progress/Planned and Dates	
Comments	Teams Responsible: PMT

NAS Recommendation	7.5 Recommendation: MRIP should take a more active role in communicating with anglers, whether through its partners or through its own efforts. The
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	<p>committee recognizes that MRIP defers to the states and regions in communications with anglers. Further, the committee recognizes that an approach coordinated with the states may be most successful in building trust and aligning the understanding of these stakeholders with the reality of how MRIP is deployed. However, MRIP should play a leading role in providing the vision and implementation strategies that partners can follow.</p>
<p>Projects/Actions Completed and Dates</p>	<ol style="list-style-type: none"> 1. Met with recreational anglers in Plymouth, Massachusetts, and Jupiter, Florida, to discuss strengthening our relationship and improving information-sharing (Dec. 2017). 2. Held MRIP Listening Tours in New England, the Mid-Atlantic, and the South Atlantic, which included presentations to partners, meetings with stakeholders, and focus groups and listening sessions with private anglers and for-hire captains. Focus groups explored angler understanding of recreational fishing data collection and response to our communications messaging and materials. Held additional angler focus group in Hollywood, Florida. (Sept. and Dec. 2018, Nov. 2019, Jan. 2020). 3. Joined the Greater Atlantic Regional Fisheries Office at the New England Saltwater Fishing Show and (New Jersey) Saltwater Fishing Expo (March 2018, March 2019). 4. Participated in Talk Stories with recreational and non-commercial fishermen in Hawaii to discuss our program and its role in developing a state non-commercial marine fishing registry, permit, or license system (Nov. 2018 and August 2019). 5. Reviewed state agency websites in Hawaii and along the Atlantic and Gulf coasts, developing and sharing agency-specific content recommendations to encourage state partners to create or update content about recreational fisheries data collection (2019). 6. Developed rack cards for Access Point Angler Intercept Survey and Large Pelagics Survey samplers to distribute to anglers, as well as state-specific outreach materials for Delaware, Maryland, and New Jersey (2019-2020). 7. Added information about MRIP to the curricula of the Greater Atlantic and Southeast Marine Resource Education Programs, which teach anglers, industry representatives, for-hire owners and operators, and other interested stakeholders about fisheries science and management (2019). 8. Facilitated conversations with state survey coordinators and field interviewers to improve our understanding of the tools and techniques that help samplers obtain cooperative survey responses (Oct. 2019 and Jan. 2020). 9. Developed a print graphic to promote the Public Access Fishing Site Register in state fishing digests (Oct. 2019). 10. Developed APAIS and Fishing Effort Survey FES At-a-Glance fact sheets to answer common questions about our shoreside intercept and mail surveys, as well as a fact sheet to explain the differences between new and legacy estimates of recreational saltwater fishing effort in the Mid-Atlantic (May-Aug. 2020). 11. Collaborated with Massachusetts, Rhode Island, New York, and Georgia state agency partners to redesign APAIS rack cards. Also created a wallet card that explains how anglers in RI can contribute

	<p>to fisheries science and management by sharing their catch information with state field interviewers (July 2020).</p> <ol style="list-style-type: none"> Updated Atlantic and Gulf coast rack cards to explain how we use shoreside intercept surveys to collect catch data from recreational anglers (Aug. 2020). Created a Greater Atlantic Region for-hire fact sheet (Sept. 2020).
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> Continue to host listening sessions with private and the for-hire sector. (Ongoing). Maintain active participation in the Marine Resource Education Program in the Northeast, Greater Atlantic, and Southeast, and at saltwater fishing shows, seminar series, and fishing club meetings, with outreach materials, where possible (Ongoing). Prioritize the development of infographics, videos, and similar communications and outreach materials as a means of quickly and effectively communicating about MRIP products, activities, and priorities to recreational anglers (Ongoing). Create print advertisements to run in state fishing digests to promote participation in the shoreside intercept and explain what MRIP does (Ongoing). Conduct proactive media outreach, pursuing potential columns in regionally relevant magazines, such as Salt Water Sportsman and On The Water (2021).
Comments	Team Responsible: CET

NAS Recommendation	7.6 Recommendation: MRIP should allow the for-hire captains a method to review their own data submittals to provide further quality assurance of these data. The committee recognizes that MRIP must follow Federal regulations to maintain data privacy and anonymity. The committee also recognizes that this additional step for data submittal would assuage concerns for an important fishing sector about the quality and accuracy of their own data that were expressed to the panel.
Projects/Actions Completed and Dates	
Projects/Actions in Progress/Planned and Dates	<ol style="list-style-type: none"> ACCSP and MRIP staff will study cost and feasibility of providing periodic reports of FHS respondents' trip reports, pending review of data confidentiality restrictions. Options for e-logbook submission review will be discussed with the Southeast For-Hire Electronic Reporting program.
Comments	Team Responsible: SOT

NAS Recommendation	8.1 Recommendation: MRIP should continue development of a statistically sound calibration methodology as improvements to the Access Point Angler Intercept Survey and Fishing Effort Survey methodologies are incorporated. In the interim, the existing ratio-based calibration should be continued. For statistical catch-at-age based (SCA) assessments, scientists should employ
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	<p>alternative catchability functions applied to the combined time series as a means to accommodate potential imprecision in the calibration of MRFSS data to MRIP data. For non- SCA frameworks, assessment scientists should exercise caution in the interpretation of trends in catch data.</p>
<p>Projects/Actions Completed and Dates</p>	<ol style="list-style-type: none"> 1. FES calibration model peer review (June 2017). 2. APAIS calibration model peer review (March 2018). 3. Application of both calibrations to full MRIP catch and effort estimate time series (July 2018).
<p>Projects/Actions in Progress/Planned and Dates</p>	
<p>Comments</p>	<p>Team Responsible: <i>Transition Team (TT)</i></p> <p>FES and APAIS calibrations complete.</p>