

# Framework for Addressing the National Academies Recommendations

## Background

In early January, the National Academies of Sciences, Engineering, and Medicine released a comprehensive follow-up review to its 2006 independent, expert analysis of NOAA Fisheries' saltwater recreational information collection efforts. The Academies recognized the agency for making "impressive progress" over the past 10 years, including "major improvements" to MRIP survey designs. The review also highlighted some remaining challenges and offered a series of recommendations for continued improvements to MRIP surveys.

The National Academies review includes 28 specific recommendations. Of these, 16 recommend exploration of methods to enhance the existing survey and estimation procedures for the Fishing Effort Survey (FES) and the Access Point Angler Intercept Survey (APAIS), 9 address communications, 1 addresses in-season management, and 2 address cross-agency coordination.

This framework breaks the recommendations into the four groups described above and lays out an approach for responding to the recommendations in each group.

## I. Framework for addressing FES/APAIS survey design and estimation procedure recommendations

- The 2006 National Academies review identified critical needs for modification of survey design and estimation to address significant potential survey error. In contrast, the current review does not identify any such critical fundamental design needs. The new survey and estimation-related recommendations represent potential opportunities to further improve the catch estimates derived from the current FES and APAIS.
- MRIP has undertaken pilot studies, completed and in progress, that address a number of the recommendations. We will evaluate and communicate the results of those projects in assessing how to most cost effectively address the technical recommendations.

**Action:** We will update and expand the survey design and estimation recommendation entries on the attached Status of Recommendations table to include details of the status and findings of past and pending MRIP projects.

**Action:** We will also catalog additional research needs that will be included in the developing MRIP Regional Implementation Plans, which is likely to expand the inventory of research needs beyond the National Academies recommendations.

- Building off the existing work we have done, we will evaluate the survey design and estimation recommendations in consultation with our partners and expert consultants to determine which present the greatest opportunity for improvement.

**Action:** We will request the ST1 Sampling and Estimation Team, the Regional Implementation Teams, and the MRIP expert consultant team review the National Academies recommendations and to make recommendations to the MRIP Operations Team regarding the priorities and suggested sequencing of research and pilot testing of survey and estimation methods.

**Action:** The Operations Team will review the foregoing recommendations and the research priorities included in the MRIP Regional Implementation Plans, and develop a blueprint of survey and estimation methods research and development priorities for review by the Executive Steering Committee.

- We will plan to undertake projects to address the highest priority recommendations in Annual MRIP Implementation Plans as staff time and resources allow.

**Action:** Implementation of survey design modifications and new methods developed from the National Academies recommendations will be undertaken by following the MRIP Implementation Funding Process and in consideration of the needs and priorities included in MRIP Regional Implementation Plans.

## II. Framework for addressing Communications recommendations

- Among the challenges identified by the review were improving MRIP communications. We are committed to improving our communications, particularly with anglers.
- As with the technical recommendations, most of the components of the communications recommendations are already being addressed by the MRIP Communications and Education Team (CET).

**Action:** We will develop a detailed summary of the status of completed and pending communications actions expanding on the attached Status of Recommendations table, and a timeline for further work that addresses the recommendations.

**Action:** The CET will develop an updated MRIP Strategic Communications Plan in FY 17. The updated plan will be undertaken in consultation with our partners, and will assure that all of the National Academies communications recommendations are addressed consistent with our resources and the priorities determined by the CET and MRIP partners.

- The National Academies review recommended that NOAA Fisheries develop 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.
  - NOAA Fisheries has a comprehensive national communications strategy that addresses sustainable fisheries management. MRIP will provide input to the NOAA Fisheries strategy, when updated, to emphasize how data collection, specifically recreational fishery catch data, directly supports the management process and helps achieve productive, sustainable fisheries and vibrant coastal economies.

### III. Framework for addressing in-season management recommendation

- The review also recommended that NOAA Fisheries evaluate whether the design of MRIP is compatible with the needs of in-season management of annual catch limits, and, if not, determine an alternative method for in-season management.
  - To address this recommendation, it is first necessary to determine the needs for in-season management actions for recreational fisheries among MRIP's data customers and stakeholders.
  - MRIP Regional Implementation Teams are currently developing Regional Implementation Plans that we expect will, among other things, identify data timeliness and in-season needs, and the priority of these needs among others the regional teams will also include.
  - MRIP has studied and tested methods to provide more timely and supplemental survey designs that can help to address in-season needs. Decisions on whether and how to further develop and implement such measures are dependent on regional partners' priorities and available resources.

**Action:** We will compile stated in-season data needs from the Regional Implementation Plans, and develop a plan and priorities for addressing those needs, by the end of CY 2017.

### IV. Framework for addressing other recommendations

- Most of the remaining recommendations call for continuation of current MRIP actions, including regional coordination, updating documentation of survey and estimation methods, increased angler outreach, and transition plan execution. MRIP fully intends to continue those actions.

## Attachment: Status of Recommendations

National Academies Recommendation	Chapter	Status	Talking Point
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.	3. FES	In Progress	
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.	3. FES	Not Currently Being Addressed	<p>This is a priority and we will continue to evaluate non-sampling errors in all our surveys.</p> <p>This particular recommendation would be high cost for the FES.</p> <p>We have done pilot studies in the past.</p> <p>Currently done, to some extent, in our for-hire survey; captains receive mailing before the call.</p>
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.	3. FES	Pilot	Pilot studies have been conducted in the past and this is an ongoing issue under evaluation.
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.	3. FES	Pilot	<p>Pilot studies have been conducted in the past and this is an ongoing issue under evaluation.</p> <p>We have an opportunity to further evaluate this issue using results from the FES pilot study.</p>

National Academies Recommendation	Chapter	Status	Talking Point
<p>3.5 Recommendation: NOAA Fisheries should evaluate the benefits of collaboration with another federal survey (e.g., the American Time Use 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.</p>	3. FES	Not Currently Being Addressed	<p>We have looked into benefits of collaborating with other surveys (such as Fish and Wildlife).</p> <p>This is not a priority given current funding and staffing.</p> <p>We will document our efforts on this front.</p>
<p>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.</p>	3. FES	In Progress	<p>Evaluation is ongoing.</p> <p>Electronic Reporting position statement.</p> <p>Research indicates that potential for this issue is growing, but still limited.</p> <p>To ensure the best estimates, we need to focus on proven methods.</p> <p>We will document our efforts on this front, and support continued research and development in this area as resources allow.</p>
<p>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.</p>	3. FES	In Progress	
<p>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.</p>	3. FES	Not Currently Being Addressed	<p>This recommendation is under review. It is a medium to low priority given current funding and staffing.</p>

National Academies Recommendation	Chapter	Status	Talking Point
<p>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 more stable estimates. Otherwise, methods dealing with influential values should be considered. These methods include weight smoothing (Beaumont, 2008) and weight trimming procedures (Potter, 1990).</p>	4. APAIS	In Progress	
<p>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.</p>	4. APAIS	Not Currently Being Addressed	Need to fix large domain issues first.
<p>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.</p>	4. APAIS	Pilot	Pilot studies are underway. It is a medium to low priority given current funding and staffing.
<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>	4. APAIS	Not Currently Being Addressed	This recommendation is under review. It is a medium to low priority given current funding and staffing.

National Academies Recommendation	Chapter	Status	Talking Point
4.5 Recommendation: There is a growing interest from anglers to report their catches electronically (use of tablets and smart phones). NOAA Fisheries should conduct a study for comparing anglers reporting catch using an app with anglers reporting catch through a traditional interview.	4. APAIS	In Progress	Have supported various studies.  Was covered under i-Angler project (reports pending).
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.	4. APAIS	In Progress	Have done studies in the past.  Summer workshop underway.
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 on standard tablets or smart phones.	4. APAIS	In Progress	Nearly complete.
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.	4. APAIS	In Progress	
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.	5. Science Framework	In Progress	Examples include for-hire Road Map and Electronic Reporting Policy Directive.  Another example was volunteer data workshop organized by Jason Didden.  Also addressed in updated Communications Strategy.

National Academies Recommendation	Chapter	Status	Talking Point
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.	6. Coordination	Not Currently Being Addressed	<p>This is a complex recommendation, beginning with the need to develop a common definition of “in-season management.”</p> <p>MRIP will participate in the broader, agency-led discussion about meeting management needs</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.	6. Coordination	Ongoing	<p>ACCSP took on APAIS in 2015.</p> <p>Gulf and West coast states working on surveys.</p>
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.	6. Coordination	In Progress	Ongoing conversation.
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.	6. Coordination	In Progress	Ongoing and consistent with strategic plan.



National Academies Recommendation	Chapter	Status	Talking Point
<p>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.</p>	<p>7. Communication</p>	<p>In Progress</p>	<p>Under discussion with NOAA Fisheries Communications.</p> <p>We will be participants and cooperative with the process.</p>
<p>7.2 Recommendation: MRIP should further develop its communications plan, 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.</p>	<p>7. Communication</p>	<p>In Progress</p>	<p>Completed needs assessment.</p> <p>Interactive two-way communication ongoing.</p>
<p>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.</p>	<p>7. Communication</p>	<p>In Progress</p>	<p>Completed with initial expansion of CET; broadening membership.</p>

National Academies Recommendation	Chapter	Status	Talking Point
<p>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.</p>	<p>7. Communication</p>	<p>In Progress</p>	<p>Ongoing effort (e.g., InPort).  Specifically index.</p>
<p>7.5 Recommendation: MRIP should take a more active role in communicating with anglers, whether through its partners or through its own efforts. The 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>7. Communication</p>	<p>In Progress</p>	<p>Ongoing effort.</p>
<p>7.6 Recommendation: MRIP should allow the for-hire captains a method to review <i>their own</i> 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.</p>	<p>7. Communication</p>	<p>In Progress</p>	<p>Recommend deferring to regional partners as part of electronic logbook implementation.</p>

National Academies Recommendation	Chapter	Status	Talking Point
<p>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 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 scientist should exercise caution in the interpretation of trends in catch data.</p>	8. Continuity	In Progress	

**Note on “Status” items:**

- **In Progress:** This recommendation is currently being addressed. Where appropriate, see “talking point” for further details.
- **Pilot:** This recommendation is not currently being addressed, however, we have conducted pilot studies looking at this issue in the past. See “talking point” for further details.
- **Not Currently Being Addressed:** This recommendation is not currently being addressed. See “talking point” for further details.