NATIONAL ACADEMIES Sciences Engineering Medicine

Promoting the Quality of Data on Marine Recreational Fishing

Sudipto Banerjee, University of California at Los Angeles, Chair

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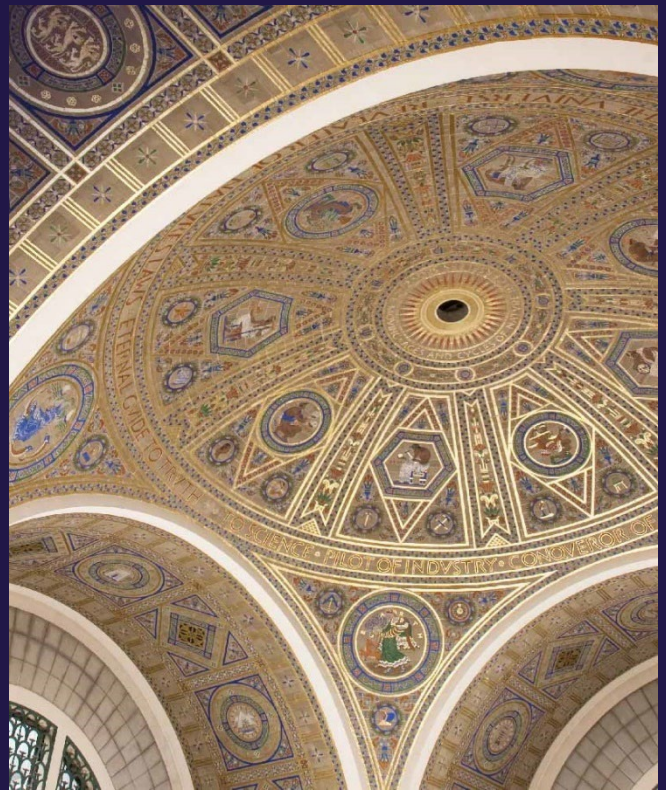
What a Consensus Panel Is



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Who are the U.S. National Academies of Sciences, Engineering, and Medicine?

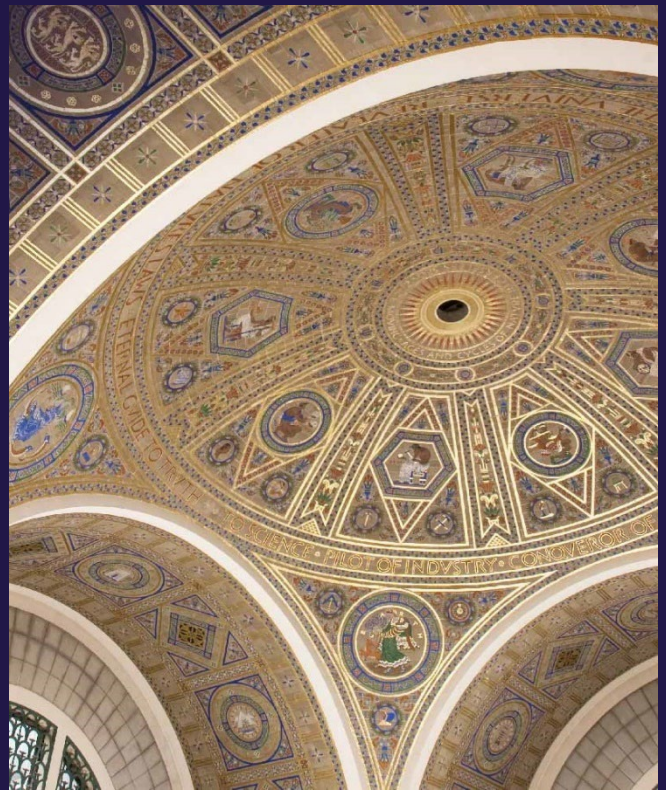
- Private, nonprofit, nonpartisan societies of distinguished scholars and scientists, elected by their peers to membership for outstanding contributions to research
- **National Academy of Sciences** established by an Act of Congress, signed by President Abraham Lincoln in **1863**
- **National Academy of Engineering**, **National Academy of Medicine** founded 1964, 1970

NATIONAL ACADEMIES *Sciences Engineering Medicine*

Basic Principles of a National Academies Consensus Panel

- Roughly 6 to 12 experts meet and collect evidence on the topic being examined, and collectively write a report.
- The panel is designed to reflect diverse specialties and backgrounds.
- All conclusions and recommendations must be unanimous, but not every word of the text.
- We do not name section authors because the entire report comes from the entire panel.
- The panel is expected to confine its review to the statement of task provided by the sponsor and otherwise works independently of the sponsor. This briefing similarly is limited to the topics discussed in the report.
- There is a rigorous external peer review process.

About the Panel



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Panel Members

SUDIPTO BANERJEE (*Chair*), Professor and Senior Associate Dean, University of California, Los Angeles
JILL M. DEMATTEIS, Principal Sampling Statistician, Fors Marsh
NED ENGLISH, Associate Director, NORC
CYNTHIA M. JONES, Professor, Old Dominion University (*retired*)
THOMAS J. MILLER, Professor, University of Maryland Center for Environmental Science
SEAN P. POWERS, Director and Professor, University of South Alabama

Staff study director: Bradford Chaney

Panel Members

	Statisticians	Survey Methodologists	Experience with Blending Data, Data Quality, and Measurement	Quantitative Experts with Knowledge of the MRIP Program
Sudipto Banerjee (Chair)	■	■	■	
Jill M. DeMatteis	■	■	■	■
Ned English		■	■	
Cynthia M. Jones		■	■	■
Thomas J. Miller			■	■
Sean P. Powers			■	■
Total=6	2	4	6	4

Peer Reviewers of the Report

- **LUIZ ROBERTO RIBEIRO BARBIERI**, Florida Fish and Wildlife Commission
- **JILL DEVER**, RTI International
- **BONNIE J. MCKAY**, Rutgers, The State University of New Jersey, New Brunswick
- **MARTIN D. SMITH**, Duke University
- **PATRICK J. SULLIVAN**, Cornell University

- **ALAN HASTINGS**, University of California at Davis (Monitor)
- **ANDREW SOLOW**, Woods Hole Oceanographic Institution (Monitor)

Report Sponsor

National Oceanic and Atmospheric Administration (NOAA)

Any opinions, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the views of any organization or agency that provided support for the project.

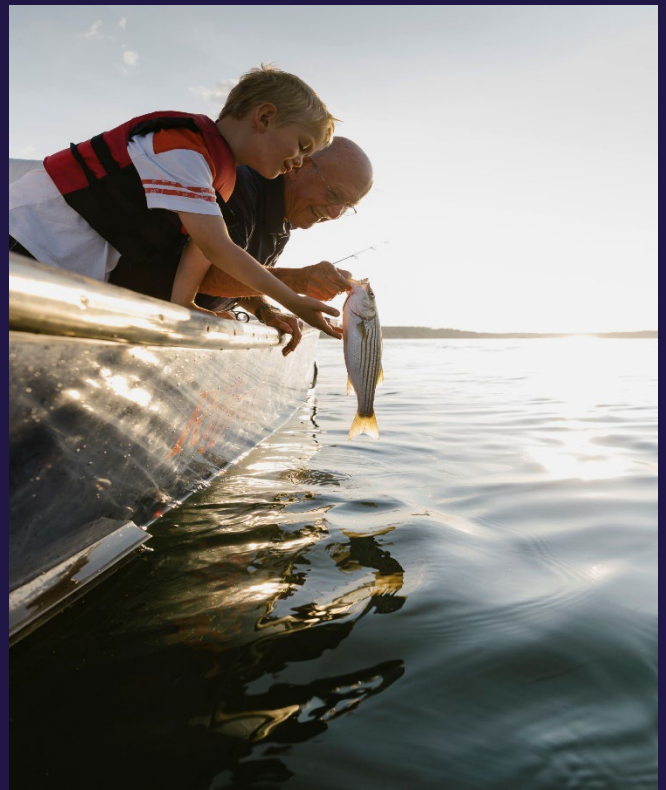
SUMMARY STATEMENT OF TASK

At the request of the National Oceanic and Atmospheric Administration (NOAA) Fisheries' Marine Recreational Information Program (MRIP), the National Academies of Sciences, Engineering and Medicine will establish an ad hoc committee to review and evaluate the MRIP survey and data standards (MRIP Standards). This committee is assigned the following tasks:

- Evaluate the effectiveness and applicability of the MRIP standards for key data uses, considering a few exemplar domains and sectors.
- Identify the alignment of MRIP standards with best practices in federal agencies and the survey profession in general.
- Assess the adequacy of the MRIP standards for meeting the Office of Management and Budget (OMB) *Standards and Guidelines for Statistical Surveys*.

The committee will produce a brief, targeted final report focused on its assessment of the standards, including conclusions and recommendations for improvements to the standards.

Background on the Collection and Use of Data on Marine Recreational Fishing



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Multiple Uses for Data

The data are used to:

- Set catch limits and prevent overfishing;
- Assess fishing stock and support rebuilding of stock;
- Support economic and socioeconomic analysis;
- Monitor the effectiveness of management measures; and
- Support fishery management at the local level.

Complexities Regarding Sampling

- There is no national list of recreational fishers, and although states maintain lists of licensees, their lists are not comprehensive.
- Anglers may use a variety of locations, many of which are too infrequently used to be good locations for monitoring.
- Fish species and the seasons for fishing vary depending on the locality.

Complexities of Measurement

- Depending on anglers' memory is particularly problematic if there is
  - a long delay between the fishing event and the reporting, **and**
  - if a high level of detail is requested (e.g., number, size, and species of fish caught and discarded).
- Fish discards can be difficult to measure, but have an important effect on fishing stock for some species.
- Localities have a need to customize their data collection to meet their specific needs.

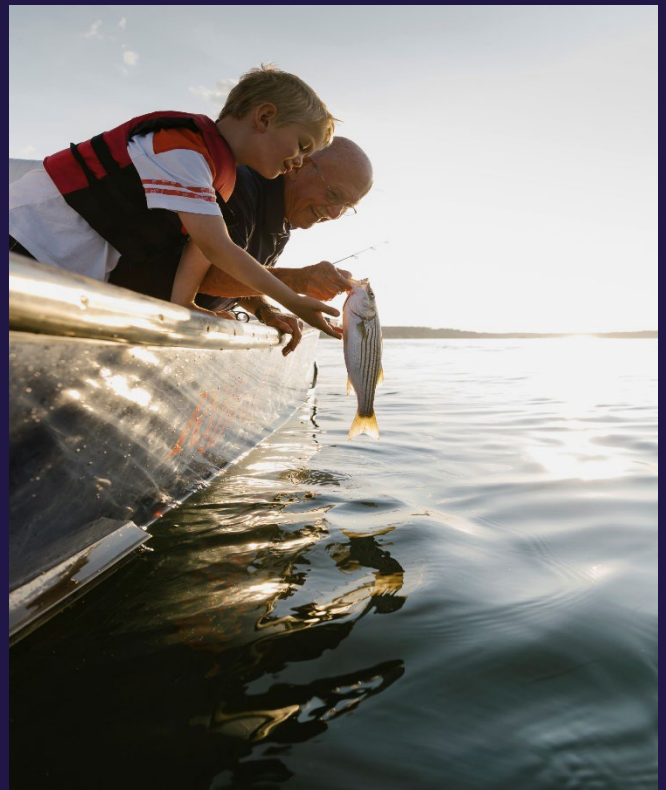
The MRIP Approach

- MRIP uses a split strategy:
  - measuring fishing effort (i.e., the frequency of fishing) through one survey and
  - estimating fishing catches and discards through another set of surveys.
- Allow states to develop their own data collections and have them certified by MRIP for inclusion in the national data.

The Purpose of the Study

- MRIP is charged with creating a national database on recreational data, using both surveys it administers and surveys it provides funding for.
- Standards are needed so that the various databases will be consistent and of high quality.
- While most of the MRIP standards were accepted, complaints arose about whether and how to report data that are less reliable.
- NOAA wanted an expert review to determine if the standards are effective and consistent with best practices.

Overall Assessment



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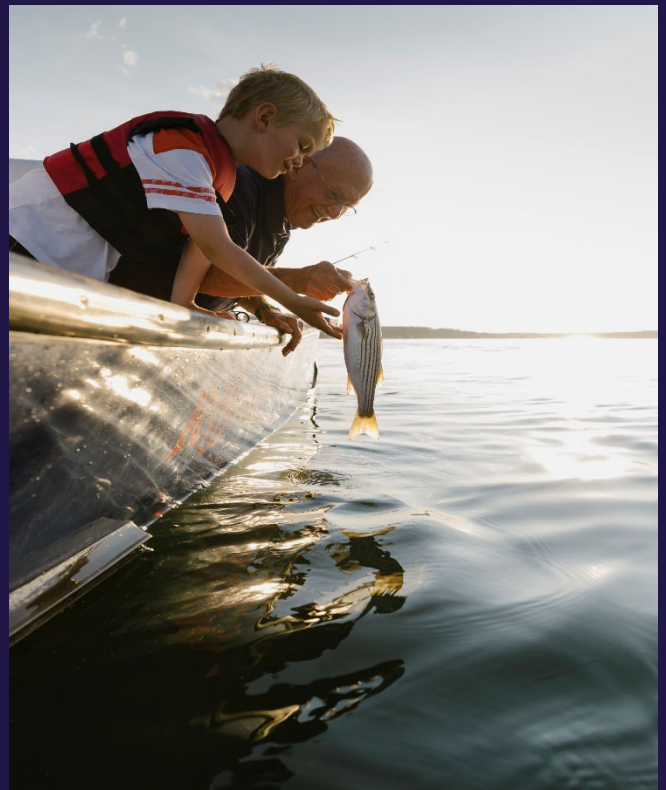
The standards are well designed. They are consistent with OMB's *Standards and Guidelines for Statistical Surveys*, the standards used by federal statistical agencies, and with the standards of other organizations. They are also well accepted by those collecting and using the data. To the extent that this report is critical of the standards, it is largely in suggesting ways of expanding beyond the current standards to cover a broader range of situations.

Setting the Context for the Review



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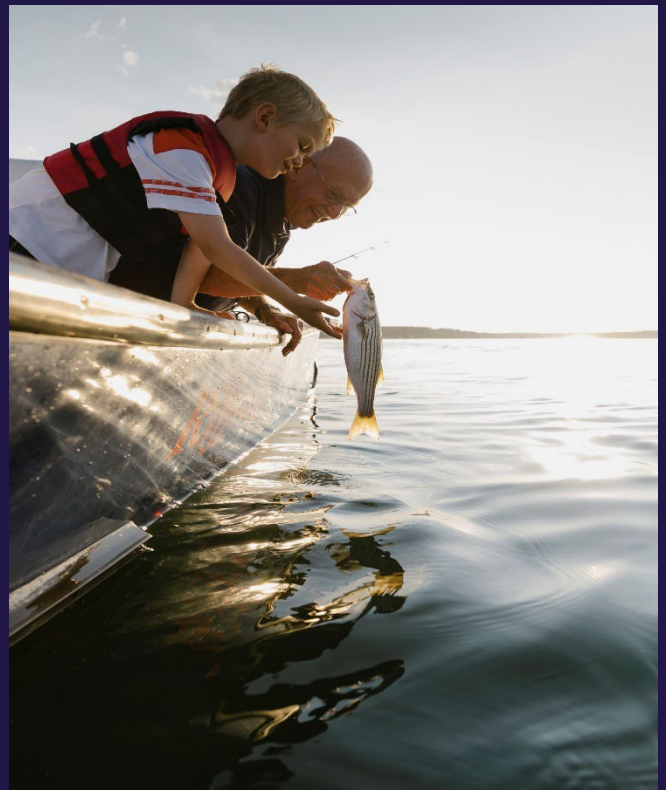
Fisheries Management is a Responsibility of Both the Federal and State Governments

- The certification process allows variations to meet local needs while still satisfying national requirements. (Conc. 2-2)
- There may be value in promoting greater coordination across the states and federal government. (Conc. 2-3)
- State and regional systems sometimes have different priorities than MRIP has, leading them to create their own surveys rather than incorporating the MRIP surveys. (Conc. 2-4)
- The lack of consistent measures and definitions across surveys (e.g., differing definitions of “angler landings” between MRIP and state programs) leads to the need to calibrate the data, potentially leading to misaligned allocations and potential overfishing overall along with disparities in what is permitted. (Conc. 2-6)

Recommendations

- MRIP should evaluate ways to promote greater consistency in how catches are enumerated, including in data collection approaches, data processing, and calibration. (Rec. 2-1)
- MRIP should consider expanding the technical expertise on surveys and statistics it provides to state and regional agencies. (Rec. 2-2)
- MRIP standards should be designed to meet the needs of both MRIP and those who are actively managing fishing activity. Where practical, these include the needs for in-season monitoring and timely data. (Rec. 2-3)
- MRIP should add “timeliness” to its data quality standards to better meet the needs of those actively managing fisheries. (Rec. 2-4)

Review of the Seven Standards



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Standard 1: Survey Concepts and Justification

- The standard is appropriate, and could be enhanced.
  - It could be broadened beyond survey research to consider alternative methodologies. (Conc. 3-1)
  - Some technology such as phone apps might improve both timeliness and accuracy. (Conc. 3-2)

Standard 2: Survey Design

Standard 2 effectively presents survey designs that are key to MRIP's data collection and estimation enterprise. However, the standard has a relatively narrow focus, concentrating on survey research as the methodological tool and primarily on probability sampling within survey research. Potential value may be gained by considering non-probability sampling. (Conc. 3-3)

Standard 3: Data Quality

These standards are clearly written, but some improvements are suggested.

- Requiring the submission of both edited and unedited values creates potential confidentiality risks, and is contrary to standard practice. (Conc. 3-4, 3-6)
- MRIP might consider adopting a total survey error approach. The standards do not give sufficient consideration to reporting error and other non-sampling error, particularly with regard to discards. (Conc. 3-5)
- AI may be useful in supporting data quality checks and in helping such checks to be performed in a timely manner. (Conc. 3-7)
- MRIP should drive innovation by evaluating and encouraging the adoption of new technologies that enhance data precision and accelerate the release of information. (Rec. 3-1)

Standard 4: Transition Planning

This standard is well justified and addresses important concerns. Note that changes beyond just sampling and estimation changes can be important: changes to survey design, data collection, and data processing all may affect measuring change over time. (Conc. 3-8).

Standard 5: Review Procedures

This standard is comprehensive and consistent with those of other organizations. Following are potential improvements.

- MRIP should adopt the AAPOR standards for computing survey response rates. (Rec. 3-2)
- Providing for multiple tiers of certification might help in expanding participation to accommodate different levels of data quality. (Rec. 3-3)

Standard 6: Process Improvement

The panel supports this standard. Process improvements are important, but the potential for changes to survey estimates should always be considered. (Conc. 3-10)

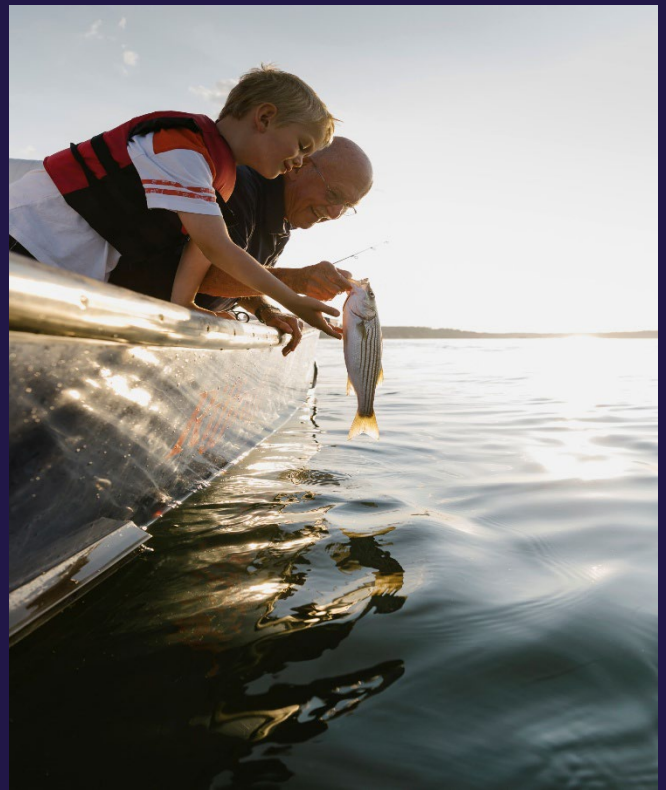
Standard 7: Access and Information Management

As requested, a major focus of the panel was on the treatment of estimates with high percent standard errors.

- In the interests of transparency and supporting fishery management programs, MRIP should continue its current practice of publishing estimates with high PSEs while clearly identifying such estimates as having low reliability. (Rec. 3-4)
- The panel also recommends providing a forum for state agencies to discuss PSE reporting and obtain feedback. (Rec. 3-5)

Some of the suggestions elsewhere in the report (e.g., consistency and timeliness) would also have implications for this standard.

Expanding Beyond the Seven Standards



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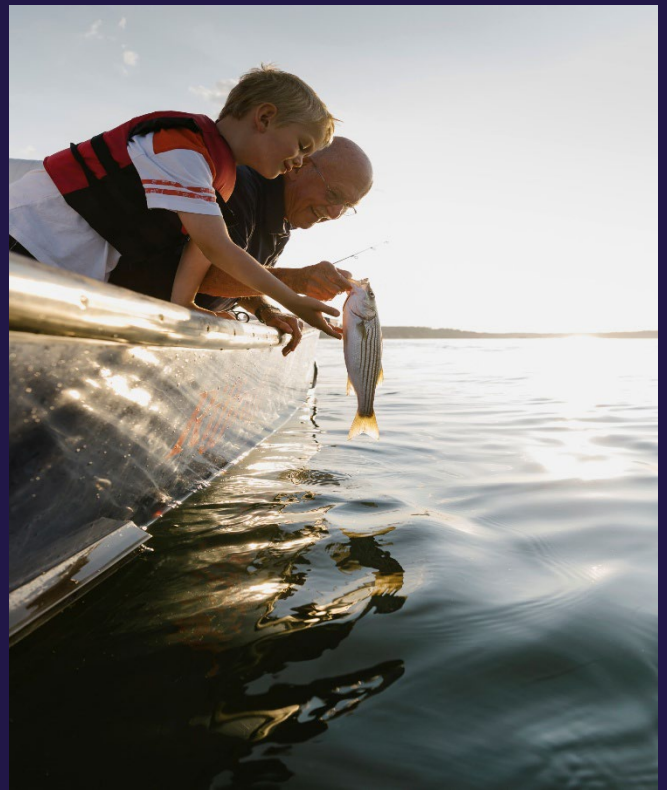
Changes in Technology and Statistics Provide avenues for Improving and Broadening the Standards

- MRIP should consider broadening the allowed data collection and analysis approaches to incorporate other types of data to supplement survey statistics (Rec. 4-1)
- MRIP should explore and, where appropriate, promote the use of model-based inference as a way of improving data quality and timeliness. (Rec. 4-2)
- Given the limited resources available to many state and regional agencies, and also to avoid duplication of effort, MRIP should provide guidance to the agencies on how to use technology to promote higher data quality. (Rec. 4-3)

Timeline



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The Timeline

Some changes proposed are incremental, and could probably be accomplished in 1 to 3 years. These include:

- Timeliness in data release
- Consistency in data collected (where appropriate)
- Data quality (consider total survey error)
- Burden and confidentiality
- Implementation

Other suggested changes require a greater development effort, may require forging collaborations with methodological researchers in academia, and 3 to 10 years could be an appropriate time span.

- Model building
- Adoption of new data science technologies

Thank you!

For more information:

Download the report and highlights

View the public webinar from March 10, 2026, 1 pm ET

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