

Atlantic States Marine Fisheries Commission

Management and Science Committee

October 28, 2013, 1 p.m. – 5:30 p.m.;
October 29, 2013, 8:00 a.m. – 12:00 p.m.
St. Simons Island, GA

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

October 28

1. Welcome and introductions (*M. Armstrong*) 1:00 p.m.
2. Approval of agenda
3. Approval of minutes—May 21-22, 2013
4. Public comment
5. Climate change and stock distributions subcommittee report
 - Summer flounder distribution analyses (*J. Hare*) 1:10 p.m.
 - Management implications for fluke (*C. Kennedy*) 1:40 p.m.
 - Climate change vulnerability analysis (*W. Morrison*) 1:55 p.m.
6. Commercial/recreational fisheries regs by state/species matrix (*M. Hawk*) 2:10 p.m.
7. E-compliance reporting and assessment data delivery (*P. Campfield*) 2:30 p.m.
8. Mid-Atlantic Telemetry Observation System (*D. Wilson*) 3:00 p.m.
 - Pilot testing with sturgeon
9. Review Stock Assessment Schedule 3:30 p.m.
 - Peer review subcommittee planning (tautog, black drum, lobster, sturgeon)
10. Management risk and uncertainty working session 4:15 p.m.
11. Updates 5:15 p.m.
 - Atlantic Coastal Fish Habitat Partnership (*E. Greene*)
 - Cooperative Winter Tagging Cruise (*W. Laney*)
 - SEAMAP (*S. Madsen*)

The meeting will be held at The King and Prince Beach & Golf Resort, 201 Arnold Street, St. Simons Island, GA;
800-342-0212

Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015

- NEAMAP (*J. Gartland*)
- Coast-wide ageing activities (*J. Kipp*)

12. Other Business 5:25 p.m.

13. Adjourn 5:30 p.m.

October 29

1. MRIP report (G. Colvin) 8:00 a.m.

- Q&A

2. Management risk and uncertainty working session (*cont. if needed*) 9:00 a.m.

3. Climate change and stock distributions working session 10:00 a.m.

4. Adjourn 12:00 p.m.

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**NOAA
FISHERIES**

Office of
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Technology

Marine Recreational Information Program UPDATE

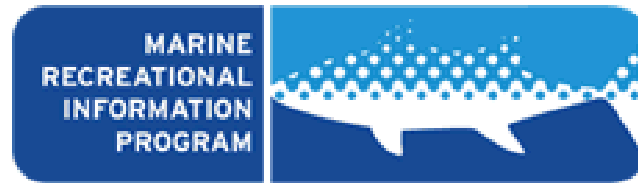
Atlantic States Marine Fisheries Commission
October, 2013

Agenda

- What is MRIP
- Status of Atlantic coast improvements
- For-hire survey considerations
- 2014 Priorities
- Regional implementation

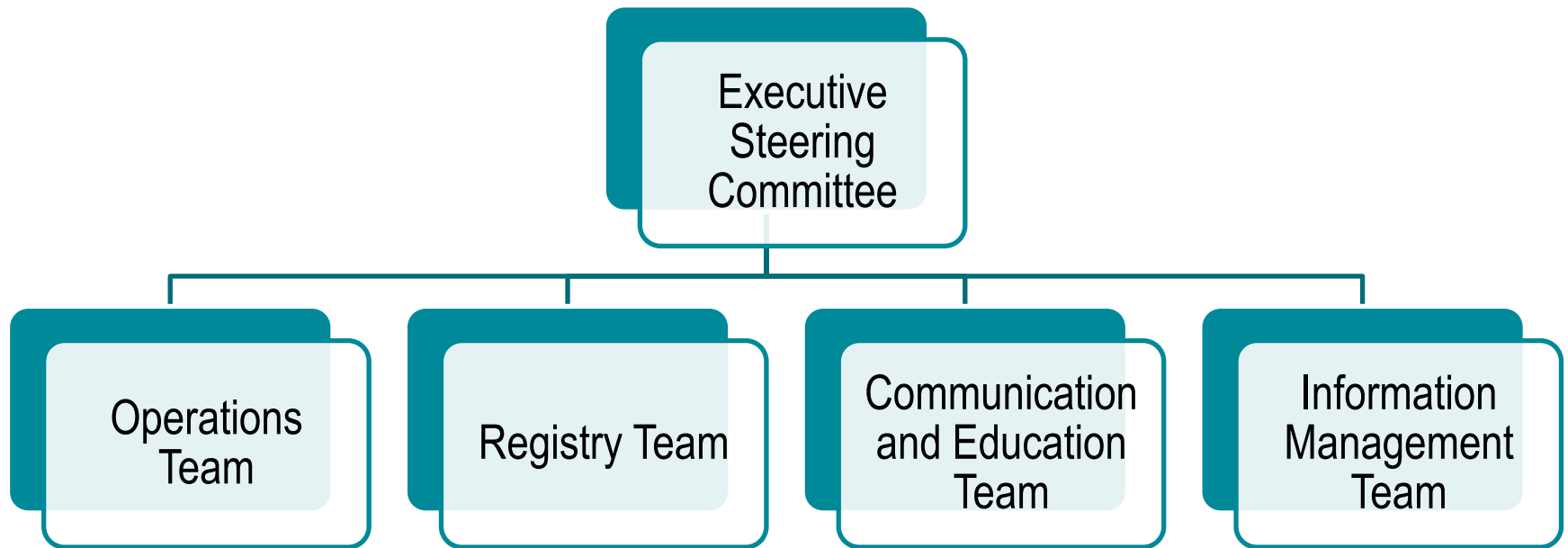
Marine Recreational Information Program

The new way we're collecting and reporting recreational fishing catch and effort data.



MRIP plays a critical role in sustainably managing our ocean resources by providing estimates of fishing activity are both **accurate** and **trusted**.

MRIP Governance Structure



MRIP Strategy

- FIRST: Address NRC Review findings about need for fundamental survey design improvements:
 - Inventory and document survey designs in use;
 - Develop revised and new methods that address NRC findings;
 - Pilot test methods and peer review results;
 - Certify new methods/designs that resolve issues and are supported by peer review.
- THEN: Implement certified survey design improvements;
 - Improved methods are likely to be more costly than status quo.
- FINALLY: Increase sampling scope and frequency to increase: precision; coverage, timeliness; address special needs for supplemental data
 - We must evaluate the tradeoffs among these competing priorities and invest carefully to get the best bang for the buck.

Recent Accomplishments

New method for estimating catch.

- Removes potential bias
- Increases accuracy
- Foundation for all other survey improvements
- Revised estimates for 2004 to 2012
- Re-calibration via ratio estimator

Greater access, transparency, and context.

- Online project inventory and updates
- Advanced queries and graphing features
- User-friendly website: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index>
- Atlantic Coast “road show”
- On-line site register
- New outreach materials

Recent Accomplishments

New design for APAIS implemented in 2013

- New site register descriptions and pressures; completely re-done last year
- Site assignments must be completed entirely. No substitution of alternate modes or alternate sites.
- Assignments will be in clusters of 1 to 3 locations, depending on the level of activity (“pressure rating”) of the sites. Sites in a cluster must be sampled in a specified order for a specified duration.
- Site assignments will cover four 6-hour time blocks, assuring coverage at all times of day.
- As in the past, interviewers are instructed to try to sample all eligible trips, regardless of whether the anglers caught anything. In addition, complete counts of all eligible trips must be made, whether or not they were sampled.
- Fact Sheet and FAQs widely distributed. Wallet cards and state-custom handouts developed.

Recent Accomplishments

New APAIS Design: managing implementation

- Sample draw program
- Productivity: number of intercepts
- Fit of time blocks to fisheries activity periods, particularly charter mode
- Pressure ratings
- Inactive assignments
- Reviewing estimates to determine whether there are design effects from new design (Gulf of Mexico reef fish example)
- Sub-regions within states (FL, NC)

Recent Accomplishments

Collecting data from the for-hire sector.

- Testing electronic reporting and validation for headboats in Southeast
- Completed for-hire logbook reporting pilot in Gulf of Mexico
- Findings and next steps:

Overview of Gulf Charter Boat Logbook Pilot

NRC Recommendation:

“In most cases, charter boat, head boat, and other for-hire recreational fishing operations should be required to maintain logbooks of fish landed and kept, as well as fish caught and released. Providing the information should be mandatory for continued operation in this sector, and all the information should be verifiable and made available to the survey program in a timely manner.”

In 2010 MRIP funded a pilot study in the Gulf of Mexico to determine feasibility of a for-hire census using electronic reporting methods.

Summary of Select Key Findings

- **Reporting Tools:** Properly designed electronic reporting is an effective method for receiving high-quality self-reported data from a large number of participants.
- **Enforcement:** Current authority was ultimately effective at achieving compliance, but not at achieving timeliness.
- **Reporting Compliance and Timeliness:** If logbooks were to be used as a census of catch and effort, the timeliness and accuracy of reporting would need to be improved.

Summary of Select Key Findings

- **Validation:** Study confirmed that self reported data are subject to recall bias and inaccuracies in reporting and therefore require validation.
- **Feasibility for Regional Implementation:** Several potential benefits from a logbook reporting system were recognized from this study.

Implications and Next Steps

Insights from the pilot study

- Clearer picture of the resource commitments necessary for implementation.
- Detailed recommendations for the necessary elements of a logbook program, including built-in quality control features.
- Necessity for effective compliance and enforcement mechanisms.
- Potential exists for using logbook data in conjunction with dockside validation data to develop a useful estimator of catch.
- Follow up technical report has been completed and will be released soon, following peer review.

Implications and Next Steps

Clear that immediate implementation of a logbook requirement is unlikely to achieve a complete and accurate census.

- More work is needed to develop an effective logbook-based census or estimation design.
- Until new methods are tested and implemented, MRIP expects to maintain the current surveys of the for-hire sector (FHS/APAIS = current ACCSP standard).
- Improvements already made to our catch surveys are being incorporated.
- Using the findings of the study, MRIP will work with partners seeking to create complementary logbook and validation programs.

Implications and Next Steps

Issues that must be addressed before moving forward include:

- Ensuring a complete registry exists of all for-hire vessels.
- Enhanced validation of catch and effort through dockside/at-sea sampling.
- Assuring compliance in a timely manner.
- Creation of easy-to-use reporting technologies in consultation with industry.
- Discussing shared resource commitments to address such implementation issues as:
 - Managing data quality, editing and integration.
 - Running dockside catch validation and at-sea discard validation programs.
 - Compliance and enforcement actions.
 - Conducting outreach to inform vessel operators of reporting requirements.

Effort Survey Pilot Project

- MRIP has been conducting pilot studies of new effort survey methodologies since 2008.
- In general, we have determined that:
 - Surveys that use only a single sample frame—a coastal household telephone directory or state angler registry—are subject to undercoverage bias.
 - Telephone surveys generally have become subject to non-response error.
- Based on what we learned from pilot projects in 2008 – 2011, we have designed two major pilot projects, the results of which will enable a final decision on effort survey design:
 - Dual frame (postal address and license registry) , mixed-mode (mail and telephone) pilot conducted in 2011/2012 in FL, GA, SC, NC;
 - A new Single-phase Address-based Sample pilot using a postal address frame with address matching from state angler registries in MA, NY, NC and FL in 2013.
- See handout and MRIP website for more details.

2013/2014 Implementation Plan Update

MRIP Team priorities for FY 14:

Operations Team: Continue to implement and evaluate alternative data collection designs. Prioritize ongoing studies, and design and implement necessary follow-up studies to finalize data collection approaches. As new sampling and estimation approaches are implemented, research priorities will shift toward more subtle refinement of data collection methods to better address stakeholder needs. Examples of possible project areas include:

- Continued evaluation of catch and effort surveys administered by state natural resource agencies;
- Development of methods to estimate catch and effort at greater levels of temporal and spatial resolution, including both design- and model-based approaches;
- Assessment of non-sampling errors, such as non-response error, coverage error and measurement error, in recreational fishing surveys;
- Continued development and testing of new technologies, such as electronic data capture and online reporting, to support recreational fisheries data collection; and
- Optimization of sampling allocations within and among recreational fishing surveys to satisfy stakeholder needs for precision.

2013/2014 Implementation Plan Update

MRIP Team Priorities for FY 14:

Registry Team:

- Continue to work with states to complete registry data quality improvement plans that address the recommendations of the advanced data quality reports provided to states in 2011/12, and any other requirements of the states' MOAs.
- Continue to provide grants to states through the Interstate Marine Fisheries Commissions to assist the states in implementing the provisions of their data quality improvement plans.
- Supply registry data from the states of Florida, Massachusetts, New York and North Carolina, and to support the MRIP pilot project Finalize Design of MRIP Effort Surveys (the project plan and update are available on our website under "projects").
- Maintain registry databases for the Atlantic and Gulf Coast states and make them available for additional pilots or new survey method deployment, as needed.
- Obtain state data on for-hire vessel licenses and registrations to support the MRIP effort to establish a new and more complete for-hire vessel registry.

2013/2014 Implementation Plan Update

MRIP Team Priorities for FY 14:

Information Management Team:

- Include fully documented metadata (the contents and context of data) for all ongoing and legacy programs, and make it available online to the public.
- Add user guides to help new users correctly interpret the characteristics, uses, and limitations of the data.
- Develop analytical tools to enhance the understanding of the data.
- Continue to add selection, download and output options to the website query tools.
- Continue to expand MDMS to tie pilot projects to the resulting data, as well as project management needs.
- Develop an integrated for-hire vessel directory.

2013/2014 Implementation Plan Update

MRIP Team Priorities for FY 14: Communication and Education Team

- Continue conducting field visits to gather feedback, with a focus on the West Coast.
- Support release of the new angler effort survey.
- Enhance for-hire survey awareness.
- Address growing interest in emerging electronic technologies for data collection and reporting.
- Foster productive relationships with internal and external partners and stakeholders
- Continue to support the release of historic data using the improved catch estimation method.

Executive Steering Committee:

- New Regional Implementation Strategy resulting from ESC Workshop held in July

Regional Implementation Strategy

The Vision:

National Quality & Regional Control

Series of regionally-based data collection programs, adhering to a rigorous set of national standards, using survey methods “certified” via MRIP.

Strategies:

- Open dialogue with partners, stakeholders
- Use existing channels (i.e. FINs—ACCSP in Atlantic regions)
- Establish a forum for regional partners to make key decisions about what survey methods/designs to use, and how to most cost effectively invest in increased sampling for precision, timeliness, coverage

Regional Implementation Workshop; July, 2013 (1)

Key Conclusions:

- A hybrid approach to MRIP implementation should be established, whereby NOAA Fisheries (through MRIP) maintains a central role in developing and certifying survey methods and establishing national standards and best practices, and regions (through the regional fishery information networks (FINs) or equivalent) would have responsibility for selecting survey methods and managing data collection.
- The MRIP National Team (the ESC) should maintain its role of program overview and participation as MRIP transitions from research and development to implementation. As an overview body, the ESC should identify issues regarding implementation; seek feedback from regions on progress in implementation and any problems being encountered; determine if regional needs are being met and identify information gaps; and determine how MRIP can provide assistance in filling in those gaps.
- The FINs and their equivalents (i.e., ACCSP) will serve as the regional MRIP Implementation teams. The Caribbean and West Pacific groups that currently exist for information sharing will be sufficient to serve as implementation teams for those regions.
- MRIP should continue its role of supporting review of non-MRIP surveys to evaluate methodologies and/or identify areas for improvement.

Regional Implementation Workshop; July, 2013 (2)

Key Conclusions:

- MRIP priorities for investment of expanded survey implementation resources will generally be guided by whether the survey, alone or in combination with other surveys being implemented in a region:
 - Utilizes a MRIP-certified survey design or methodology;
 - Conforms to the MRIP standards for survey coverage and basic data elements;
 - Conforms to any additional national standards or best practices that the MRIP national implementation team may adopt in the future; and
- Provides catch estimates for fisheries managed under MSRA (including Atlantic HMS) or jointly by the states and NOAA Fisheries that are deemed by the MRIP regional implementation team to provide recreational catch statistics sufficient to:
 - Complete generally reliable stock assessments;
 - Support development of annual catch limits that meet MSRA requirements; and
 - Support development of recreational regulations that minimize triggering of accountability measures.

Regional Implementation Strategy (1)

Program element	MRIP ESC/National Team	Regional Teams/FINs
<u>Assuring surveys adhere to certification methods</u>	Certifications	X
<u>Operational Requirements</u>		Choices
• Develop/certify data collection design	X	
• Data collection approval		X
• Procurement/Grant management	X	X
• Survey operations and Oversight	QA/QC Standards	X
• Information management	Standards	X
• Research and Development	X	
• Compliance/Enforcement		X
• Outreach/Communication	Resources, Tools	X

Regional Implementation Strategy (2)

Program element	MRIP ESC/National Team	Regional Teams/FINs
<u>Choosing among methods</u>		X
<u>Choosing among options for coverage-timeliness-precision</u>	Policies and Priority	X
<u>Get feedback from regions and advise NMFS leadership regarding needs</u>	X	Input
<u>Get feedback from data users</u>	X	Input

Atlantic Atlantic Coastal Cooperative Statistics Program Targets (updated, 2013)

- New estimation method adopted
- Shoreside intercept survey reflected in targets
- For-hire trip reporting decisions pending
- Coverage and timeliness reflected in targets
- Precision workshop planned
- Evaluation of tradeoffs developing model
- Effort survey design expected 2013
- Choices for coverage, precision, timeliness and partner resource commitments beginning in 2014

Thank you.

Please visit us at:

www.CountMyFish.noaa.gov

Contact MRIP at:

Leah.Sharpe@noaa.gov



NOAA FISHERIES

MRIP Effort Pilot Studies At-a-Glance:

WHERE:

FL, MA, NC, NY

GOALS:

- Identify a better method than random-digit dialing to reach saltwater recreational anglers for effort surveys.
- Determine the best way to use license and registration information to contact anglers, and how to fill in gaps that exist in registration databases.
- Establish the most effective methods for maximizing the number of anglers who respond to surveys.

METHODOLOGY:

- Survey is mailed to randomly selected households (based on license and registration information, as well as USPS household address databases) at the conclusion of each two-month sampling period.
- Recipients are asked to report the fishing activity for each member of the household during the previous wave, as well as provide additional household information.
- A total of up to three contacts is made with each sampled address. These include an initial survey and two follow-ups, as necessary.

MRIP Fishing Effort Survey Pilot Studies: Testing Registry Data, Moving Away From Random-Digit Dialing

Why do we need to look at new ways to estimate fishing effort?

“Effort” surveys are what NOAA Fisheries uses to estimate how many fishing trips are taken by recreational anglers. This information is coupled with our complementary surveys of angler “catch rates” to come up with an overall picture of recreational fishing catch and activity.

NOAA has traditionally used a survey method called “random-digit dialing” (RDD) to contact households in coastal counties and collect recreational fishing effort data. RDD is a widely accepted survey approach, and focusing on the coastline was the best way to find saltwater anglers. At the same time, there are also several well-known shortcomings with this method:

- **RDD is inefficient at identifying anglers.** Many calls go to households where no anglers live, which increases the cost of contacting anglers.
- With more people abandoning “land lines” for **cell phones**, which cannot be included in our telephone survey, a growing number of potential anglers become unreachable.
- **Response rates**, or the number of people who actually pick up the phone and answer the questions, are declining for all telephone surveys. This is true whether for fishing effort, public opinion polls, or attitudes about a commercial product or service. As with undercoverage, “nonresponse” is a potential source of bias.

What improvements are being tested?

In September of 2012, we launched the final phase of our effort survey pilot studies. Building on previous findings, we’re honing in on definitive answers to two fundamental questions:

- What is the best way to identify saltwater recreational fishermen to include in a survey? (This is what statisticians call the “sample frame.”)
- Given the limitations of RDD, what is the best way to contact them?

Using License and Registration Data as a Sample Frame

From the perspective of estimating recreational fishing activity, the main purpose of state and federal saltwater fishing license and permit programs is to provide an effective way to survey anglers. However, current license and registration databases are incomplete. Coverage gaps include people who have not registered; people who are not required to register in some states, like youth under age 16; or registrants who make mistakes on their application. To ensure we can reach all people who may be fishing, we supplement the license and registration “sample frames” with lists of all households now available from the U.S. Postal Service.

Reaching Anglers by Mail

One surprising finding from our previous work is that – even in our “digital age” – the most effective way to reach recreational anglers has been through the U.S. Mail. This study will verify whether this holds true, and also help identify the best way to design our surveys so that we get the most responses.

What’s next?

We will complete this pilot study by the end of 2013. We anticipate that beginning in 2014, the MRIP fishing effort survey will incorporate a combination of license/registration and USPS frames, and will be conducted by mail.





NOAA FISHERIES

NOAA Fisheries is an agency within the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). NOAA's mission is to understand and predict changes in the earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social and environmental needs. The NOAA Fisheries Service provides world class science and stewardship.

The Marine Recreational Information Program, or MRIP, is the new way NOAA Fisheries is collecting, analyzing and reporting recreational fishing data. MRIP gathers catch information through in-person surveys of anglers taken at the completion of a fishing trip.

FOR MORE INFORMATION

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(301) 427-8528

Key Takeaways for the MRIP Fishing Effort Survey Pilot Studies

- We're **MOVING AWAY** from the Coastal Household Telephone Survey, which uses random-digit dialing of coastal households to contact anglers.
- We are **CURRENTLY USING** angler data submitted through licensing and registration programs in our fishing effort survey pilot studies. We're testing how this improves our overall efficiency, as well as our ability to reach non-coastal saltwater anglers.
- Because not all saltwater anglers are licensed, and some license information we receive is inaccurate or incomplete, we're **SUPPLEMENTING** our survey sample frames with information supplied by the U.S. Postal Service.
- Our work to date has shown that mail surveys are **MORE EFFICIENT** than telephone surveys for collecting trip information from anglers. This is consistent with other research showing that telephone surveys are seeing an overall decline in effectiveness, regardless of what they're used for.
- We are in the **FINAL PHASE** of testing improvements to our effort surveys. We anticipate our new survey methods will be implemented in early 2014.
- Other MRIP studies are testing new methods to conduct angler intercept "catch" surveys. We use these surveys to estimate the number of fish being caught, along with their size and species, and whether they were kept or discarded.



Implementing Regional Electronic Logbook Reporting Programs in the For-Hire Fleet

Findings, Recommendations, Implications and Considerations from the MRIP Gulf of Mexico For-Hire Pilot Study

Synopsis

There is growing interest among fishery scientists and managers, charter boat and headboat operators, and other stakeholders in using new technologies and new methods to gather catch and trip information from the for-hire fishery. Stakeholders are particularly interested in exploring the possibilities of:

1. Converting all for-hire reporting from paper logbooks to electronic logbooks as a potential method for improving timeliness and accuracy of reporting.
2. Using a census – instead of a sample-based survey – of the for-hire fishery to generate trip and catch data for this mode, analogous to the way most commercial fishery landings are now measured.

Many stakeholders believe that a logbook-based census would provide data that is more timely and accurate. Stakeholders also believe that the catch statistics derived through a logbook reporting program will be more widely accepted by the for-hire fishing community than estimates derived from sample surveys. A study conducted by the Marine Recreational Informational Program (MRIP) indicates that there are many potential benefits of implementing electronic logbook reporting, but that implementing such initiatives will not be a “turnkey” operation. Implementation of electronic logbook reporting will require the development of new reporting tools, the certification of new data collection methodologies, the creation of effective validation checks, and the existence of effective enforcement mechanisms. Serious thought will need to be given to what agencies will take on these responsibilities and how they will be funded.

This paper summarizes the peer-reviewed key findings of the Gulf of Mexico for-hire pilot study, the implications of those findings, and key considerations that regional partners must take into account when seeking to create an electronic logbook reporting program. Those considerations include the need to:

- Ensure a complete and accurate vessel registry;
- Develop and implement effective means of validation;
- Establish data collection, QA/QC and integration protocols;
- Develop the appropriate software and identify the appropriate hardware, in consultation with for-hire operators;
- Create effective enforcement mechanisms and potential penalties to ensure both participation and timeliness of reporting;
- Determine how the expanded reporting, validation, and enforcement work will be funded; and
- Determine roles, responsibilities and resource commitments among state, regional and federal partners.

Implementation of for-hire electronic logbook reporting is a regional decision that should be driven by the requirements and capabilities of the regional fisheries data collection partners from NMFS, the States, Regional Fishery Management Councils, and Interstate Marine Fisheries Commissions. These

partners' participation in determining regional data collection methods and standards is crucial in developing a program that responds to regional needs and takes advantage of existing regional opportunities and capabilities. Given these needs, MRIP will work with the Fishery Information Networks (FINs) and their equivalents to facilitate such a dialogue.

As our regional partners on the Atlantic and Gulf coasts consider whether to pursue for-hire electronic logbook reporting, MRIP will continue to work with them to estimate for-hire catch using our current methods, which themselves have undergone substantial improvements and continue to evolve.

Overview

In its 2006 review of NOAA Fisheries data collection methods, the National Research Council (NRC) recognized the data collection and estimation challenges presented by the "hybrid" nature of the for-hire fishery, which shares characteristics of both commercial and recreational fishing. Among its recommendations for addressing these challenges, the NRC stated that:

"In most cases, charter boat, head boat, and other for-hire recreational fishing operations should be required to maintain logbooks of fish landed and kept, as well as fish caught and released. Providing the information should be mandatory for continued operation in this sector, and all the information should be verifiable and made available to the survey program in a timely manner."

Following its establishment, MRIP created an Operations Team consisting of senior technical staff from NMFS and its partner organizations to develop new and improved survey and estimation methods that would address the NRC recommendations. The Operations Team developed a process for working with expert independent consultants, our data collection partners and stakeholders to develop and pilot test new survey designs. Once new designs have been successfully pilot tested and peer reviewed, the Operations Team may recommend that they be certified for use by NMFS and its partners. Going forward, MRIP will provide technical and financial support for implementation of MRIP-certified survey designs and methodologies.

To support this effort, the Operations Team established a For-Hire Working Group to recommend and prioritize a program of research and development that would address the NRC recommendations related to for-hire sector data collection. Initial projects recommended by the Working Group included a complete documentation of for-hire survey designs being used nationwide, and a consultant review of the documented designs with recommendations for specific improvements and best practices. The final reports for these studies are located at: **[to insert when Website back up]**.

The consultant review report included recommendations for use of electronic logbook reporting as a preferred method for developing for-hire catch statistics, with recommendations for the design of valid logbook programs. The For Hire Working Group then recommended testing the designs in a pilot logbook program, with a dockside validation component.

The Operations Team and the For-Hire Working Group worked collaboratively with state partners, for-hire operators and other stakeholders to launch a pilot study in the Gulf of Mexico in 2010 to determine the feasibility of conducting a census of charter boats using electronic reporting methods with dockside validation of the self-reported catch and effort data. The study covered more than 400 Federally permitted charter boats in the Gulf of Mexico, with weekly reporting required for permit renewal. The findings of the study were evaluated through an independent peer review and the final report was

approved by the MRIP Executive Steering Committee. The full report is available at [to insert when Website back up].

Key Findings and Recommendations from the Study

A summary of the key Findings and Recommendations is provided below. A detailed version is appended at the end of this document.

- **Reporting Tools:** Electronic reporting with built-in quality control features that prevent data entry errors and omissions was an effective method for receiving high-quality self-reported data from a large number of participants.
- **Enforcement:** Current authority to enforce reporting requirements for federally permitted vessels was effective for achieving reporting compliance, but was not effective for achieving timely reporting.
- **Reporting Compliance and Timeliness:** Based on the results and design of this pilot study, a census of for-hire catch and effort using logbooks was not achieved. If logbooks were to be used as a census of catch and effort, the timeliness and accuracy of reporting would need to be improved.
- **Reporting Frequency:** The frequency with which participants were required to report during this pilot study was weekly, and this frequency was sufficient to produce precise and timely catch and effort statistics.
- **Validation and Estimation:** Comparisons between logbook reports and independent field validations confirm that self-reported data are subject to recall bias and inaccuracies in reporting; therefore individual logbook trip reports cannot be considered a one-to-one match with independent validations. However, given an adequate sample size, aggregated logbook data are potentially very useful for developing estimators for total effort, catch-per-unit effort (CPUE), and total harvest at the regional scale.
- **Field Validation:** The three field validation methods employed in this study were variable both in terms of cost and the granularity of information provided for direct comparisons with logbook trip reports. Effort validation through vessel activity status verification is the least costly method and was effective for measuring reporting compliance, though additional methods may need to be considered during periods of low fishing activity or in states with low numbers of vessels. Dockside sampling is the least costly method for validation of catch, but is not effective for validation or estimation of released catch. At-sea validation is the most costly method for validating catch, but provides high resolution data on numbers and size of landed and released fish, depth of capture and area fished.
- **Feasibility for Regional Implementation:** Several potential benefits from a logbook reporting system were recognized from this study. Given adequate resources and long-term funding commitments, this method would be feasible for a large geographic area with a large number of vessels, but may not be for smaller areas. Regional implementation would need to consider whether to include vessels that do not possess federal permits and mechanisms to enforce reporting. A complete registry of all for-hire vessels is recommended before mandatory logbook reporting is implemented in a region.

Implications and Next Steps

Key Lessons from the Pilot Study

As regions evaluate options for improving estimates of for-hire fishing activity, the pilot study offers numerous important insights, including:

- ***A clearer picture of the resource commitments necessary for the successful implementation of a logbook program.*** The study clearly indicated that not only is there a need for the up-front costs of developing and deploying an electronic reporting system, but that sustained resources will need to be committed throughout the life of the program to issues such as enforcement, validation and outreach.
- ***Detailed recommendations for the necessary elements of a logbook program.*** The study showed that while emerging technologies may provide a path toward improved reporting, there are numerous critical choices that must be made to successfully navigate that path. These include the need to work closely with industry to develop trip reporting software that for-hire operators can easily use and to choose hardware that is feasible for use on vessels of all types and durable enough to withstand the demands of reporting in a variety of conditions. Also important is the need to ensure that quality control features – tools that can minimize input error at its source – are built into the reporting tools.
- ***The necessity for effective compliance and enforcement mechanisms to complement validation and improve participation, timeliness and accuracy.*** The study indicated that not all for-hire operators will comply with a mandatory reporting requirement. Even among those who do, data might not be input in a timely fashion, and may not accurately represent actual catch on all reported trips.
- ***The potential for using logbook data in conjunction with dockside validation data to develop a useful estimator of catch.*** The study indicated that, regardless of whether an electronic logbook program achieves a full census, a properly designed system can use logbook-reported data in combination with dockside validation data to develop a reliable estimate of catch. A follow up technical report was conducted to further explore this potential.

Implications for Implementing For-Hire Electronic Logbook Reporting

The results of the pilot study indicate that although electronic logbook programs have promise to improve data collection and reporting, there are important short-term considerations that must be taken into account, and decisions that must be made, to maintain continuity of high-quality data delivery.

- It is clear that immediate implementation of a logbook requirement for federal permit holders is not likely to achieve a complete and accurate census of catch.
- To address the findings and recommendations of the pilot study, more work is needed to develop an effective logbook-based census or estimation design.
- Until new certified methods are developed and ready for implementation by our partners, MRIP expects to maintain the current surveys of the for-hire sector, incorporating improvements that have already been made to our catch surveys. These improvements include:
 - Collecting data on the number of angler trips and other information from a sample frame of registered vessel operators, as recommended by the NRC;
 - Working to build a more complete and accurate registry of for-hire vessels;
 - Developing an improved estimation method for calculating catch estimates from intercept data; and
 - Implementing a new, design-unbiased, angler catch survey.
- Simultaneously, we will work with our regional data collection partners, the Atlantic Coastal Cooperative Statistics Program (ACCSP) and the Gulf Fisheries Information Network (FIN), to

explore the potential for establishing logbook and validation programs that complement our current surveys. The MRIP role will be to:

- Help incorporate findings and lessons learned from the pilot study into these programs;
- Support further studies that lead to MRIP certification of a trip reporting and validation methodology; and
- Potentially assist with the implementation of new methods through technical and funding support.

Next Steps for Regional Implementation

MRIP was conceived from the beginning as a series of regional data collection programs all adhering to a rigorous set of national scientific standards. As outlined in our 2013 Implementation Plan Update, the MRIP strategy for implementation of new survey methods will continue to follow the national standards/regional surveys model. NOAA Fisheries (through MRIP) will maintain a central role in developing and certifying survey methods and establishing national standards and best practices. The regions (through the regional FINs or their equivalents) will have responsibility for selecting survey methods, identifying needs and priorities for enhanced data collection (i.e. for improved coverage, timeliness, precision, and special needs), and managing data collection.

Specifically, MRIP national leadership will identify issues regarding implementation; seek feedback from regions on progress in implementation and any problems being encountered; determine if regional needs are being met and identify information gaps; and determine how MRIP can provide assistance in filling in those gaps. At the regional level, the FINs and their equivalents (i.e., ACCSP) will help facilitate a dialogue about whether an electronic logbook program is an appropriate way to meet their regional needs and, if it is, how to move forward in its development.

While each regional electronic logbook program ultimately created will be unique, the pilot study indicated there are a set of common issues that MRIP and the FINs must jointly address for successful implementation. These include:

- **Identification of all eligible vessels, including non-federal permit holders.** Current for-hire vessel registries are incomplete. Not only does this fact make a census impossible, it also introduces the potential for bias into any survey program.
- **Enhanced independent validation of logbook reports beyond dockside sampling.** The study indicates that to ensure quality data, additional validation measures must be put into place. These could include reporting requirements such as hail-out/hail-in, or electronic reporting prior to landing that could be validated in part using enforcement assets. The costs of both developing the validation protocols, as well as the ongoing validation, must be taken into account in any design.
- **Assuring compliance in a timely manner** through such potential means as permit sanctions, civil penalties, enforcement actions, etc. Federal, state and regional authorities will have to work together to develop mechanisms that ensure complete, accurate and on-time reporting.
- **Development and approval of “user friendly” reporting technologies in consultation with the industry.** Industry buy-in is a critical component of the success of any program, and the quicker industry comes on board, the quicker the access to the quality data being sought.
- **Testing, development and implementation of new sampling survey designs** that could provide the means for independent validation of logbook reports and/or correction of any measurable self-reporting errors.

- ***Shared resource commitments to address implementation issues.*** The costs of designing, testing, implementing and maintaining an electronic logbook program will be substantial and ongoing. A full accounting of those costs – and how they will be shared among states, regions and the federal government – will be a fundamental first step. Resource issues to be addressed include, but are not limited to:
 - Building, maintaining and operating systems to receive electronic logbook data and perform data quality analysis, editing and integration;
 - Dockside sampling for validation of landings and at-sea sampling for validation of released catch;
 - Compliance and enforcement actions; and
 - Outreach activities to inform vessel operators of reporting requirements, which include the tracking of reporting and issuing reminder notifications.

APPENDIX

Key Findings and Recommendations From The Gulf of Mexico Charter Boat Logbook and Dockside Validation Pilot Project

Reporting Tools

Electronic reporting with built-in quality control features that prevent data entry errors and omissions was an effective method for receiving high quality self-reported data from a large population of participants. Paper logbooks and electronic reporting options without built-in quality control features required more follow-up with participants to verify and attempt to correct self-reported data. Electronic reporting options that allow users the ability to record and store logbook data at-sea facilitate better record keeping and accurate recall by offering more flexibility for when and how users keep track of trip details and record logbook data.

Recommendations:

- Participants in the fishery should be involved in the design of electronic logbooks to improve data reporting accuracy and efficiency, and to ensure data entry fields are clearly described.
- Electronic reporting is preferred over paper logbook reporting and it is recommended that electronic reporting be required for participation in a fishery, whenever it is practical to do so.
- Electronic reporting tools should have quality control features built in to prevent data entry errors and omissions by users, and electronic reporting options be certified to include all required quality controls before they become available for use.
- Electronic reporting tools should include a feature that requires an entry of either inactivity or activity for each day in the reporting period. Alternative options, such as hail out/hail in requirements or vessel monitoring systems, should also be considered for reporting activity.
- Regardless of whether or not real-time reporting is required of participants in a fishery, electronic reporting options that offer users the ability to record and store logbook data at-sea during reported fishing trips (example, smart-phone applications, tablets, etc.) are highly recommended to facilitate record keeping and accurate recall of logbook information.
- Electronic logbook records should be accessible, with password protection, to vessel owners for their record-keeping purposes. This will help create cooperation and incentive for participation.

Enforcement

Current authority to enforce reporting requirements for federally permitted vessels was effective for achieving reporting compliance, but was not effective for achieving timely reporting. Under the current authority, a delinquent vessel may continue to fish until the permit is due for renewal on an annual basis. Prior to the permit expiration date, the permit holder may submit delinquent records for the previous 12 months to become compliant and clear the permit for renewal. These data are not reliable in most cases. After the permit is issued, the same vessel can be non-compliant in the same manner the following year with the same consequences and results. Authority to require and enforce charter vessel trip reporting for non-federally permitted vessels varies by state and some states require legislative changes to gain such authority.

Recommendations:

- As with any mandatory reporting program, timely reporting by participants should be required for logbooks and this requirement should be enforceable. It is recommended that authority to

enforce reporting requirements be modified to enhance the timeliness of reporting. The authority should include permit suspension, permit termination and civil penalties to facilitate enforcement of timely reporting.

- It is highly recommended during the initial implementation of a logbook reporting requirement that planned methods are in place for initiating a quick response if compliance is low at the onset of the reporting requirement.
- Follow-up procedures to track reporting compliance should be designed to facilitate timely enforcement (see recommendations below under “Reporting Compliance and Timeliness”).

Reporting Compliance and Timeliness

Based on the results and design of this pilot study, a census of for-hire catch and effort using logbooks was not achieved due to non-responses (both at the individual trip-level and vessel-level) by vessels required to report. For an ongoing logbook reporting program to remain effective, a consistent and high level of effort by port samplers and law enforcement is required to validate and maintain reporting compliance and timely reporting. If logbooks were to be used as a census of catch and effort, the timeliness and accuracy of reporting would need to be improved. Throughout the pilot study, reporting compliance gradually improved and most likely would have continued to improve had this pilot study run for a longer period and fishermen became more familiar with reporting requirements. However, the issue of vessels reporting inactivity during weeks when they actively fished would continue to be an obstacle to achieving a complete census and must be accounted for. A requirement to report vessel activity or inactivity each day within a reporting period is needed to effectively track and monitor compliance for a complete census of all trips, and to conduct timely follow-up for late and missing reports (i.e., within a given reporting week, participants should be required to report inactivity or activity for each day). A large number of vessels with federal permits did not actively charter fish during the pilot study (100 of 358 in Florida and 43 of 58 in Texas), and different reporting requirements may be necessary for inactive permit holders.

Recommendations:

- While we do not rule out logbook reporting as a feasible method for the collection of catch and effort statistics from the for-hire sector, logbooks are not recommended if a complete census is necessary due to the significant additional resources in manpower and funding required for a logbook reporting method to achieve a complete census.
- To achieve maximum compliance and timeliness, we strongly recommend that before any logbook program is implemented, provisions for the following components are included in the initial design and implementation phases for the program, and that long-term, recurring funds are appropriated to ensure that these tasks are maintained over the duration of the program:
 - A large up-front effort to inform participants of upcoming reporting requirements prior to implementation;
 - Methods to track and quickly identify missing and late reports both at the onset of the program and over the long-term duration of the program;
 - Follow-up procedures that are timely and maintain compliance and timely reporting over the duration of the reporting program; and
 - Multiple stages of follow-up procedures that are maintained over the long-term duration of the program, including an early prompt to remind participants when reporting deadlines are approaching, notifications to participants immediately after the deadlines are missed, and later follow up if reports are still delinquent.

Reporting Frequency

The frequency with which participants were required to report during this pilot study was weekly, and this frequency was sufficient to produce precise and timely catch and effort statistics. The effort required to effectively monitor compliance with timely follow-up for missing and late reports in this study would have been much greater if the selected reporting frequency was daily, and the cost would be even greater if certifying the accuracy of daily reporting at the individual vessel level was required (such as in commercial fisheries managed with individual fishing quotas or IFQs). Decreasing the reporting frequency (bi-weekly or monthly) to further reduce costs would come at the expense of increased recall bias and is not recommended.

Recommendations:

- The selected reporting frequency and required reporting accuracy should be considered both in terms of the cost and necessity for management and assessment before implementing a region-wide logbook reporting methodology.
- The project team recommends a weekly reporting frequency combined with a daily reporting requirement for a logbook reporting design as the most feasible method, both in terms of cost and the benefits for minimizing recall bias and tracking compliance. Daily reporting frequency is only recommended if adequate resources can be dedicated to compliance tracking and timely follow up, and only if daily or individual vessel monitoring is necessary for fisheries management.

Validation and Estimation

The logbook reporting methods pilot tested in this study did not achieve a complete census. Logbook reports in this study were submitted for a large portion of the total effort (approximately 70% overall), which was verified through field validations of vessel status. Comparisons in this study between logbook reports and independent field validations confirm that self-reported data are subject to recall bias and inaccuracies in reporting; therefore individual logbook trip reports cannot be considered a one-to-one match with independent validations. However, given an adequate sample size, aggregated logbook data are potentially very useful for developing estimators for total effort, catch-per-unit effort (CPUE), and total harvest at the regional scale. It is unlikely that logbook records can be used to provide precise daily estimates, and precision could also be low for weekly estimates, particularly during months of low fishing activity. We believe it is feasible to develop estimators for cumulative monthly catch and effort during periods of high fishing activity, and bi-monthly during periods of low fishing activity. Seasonal (lower frequency than bi-monthly) estimates would not be useful to regional fisheries managers and are not recommended.

Recommendations:

- The project team worked with an MRIP Consultant to develop appropriate methods for estimating effort and catch using data from this study. A report for this task, which includes recommendations for consideration, was provided to the MRIP Operations Team in December, 2012, and is currently undergoing peer-review.
- Given 30% of total trips validated did not submit logbooks, it is recommended that additional research be conducted to determine if adjustment methods are needed to account for sampling bias associated with vessels that did not report logbooks.
- Methods currently in place to estimate catch and effort for for-hire fisheries in the Gulf of Mexico and Texas should be evaluated to determine whether sample sizes are sufficient for precise and accurate estimates. In addition, potential bias associated with non-response (both refusals and non-successful contacts) should be evaluated for each methodology. If sample sizes

in current surveys are not sufficient, then the cost to achieve necessary sample sizes should be compared to a logbook reporting system to determine whether a logbook reporting system is a more affordable alternative for achieving larger sample sizes.

Field Validation

If individual logbook records could be considered one-to-one equivalents of what would result from dockside sampling, then a small validation monitoring program would be sufficient. However, based on the results of this study, logbook records should not be viewed as giving values similar to dockside sampling of the same trip (e.g., a small number of dockside samples should not be expected to agree with a small number of corresponding logbooks reports). The three field validation methods employed in this study were variable both in terms of cost and the granularity of information provided for direct comparisons with logbook trip reports. Effort validation through vessel activity status verification is the least costly method and was effective for measuring reporting compliance, though additional methods may need to be considered during periods of low fishing activity or in states with low numbers of vessels. Dockside sampling is the least costly method for validation of catch, but is not effective for validation or estimation of released catch. At-sea validation is the most costly method for validating catch, but provides high resolution data on numbers and size of landed and released fish, depth of capture and area fished. The feasibility of placing fisheries observers on charter vessels to collect high quality validation data at-sea was demonstrated during this study; however, due to low sample sizes we were not able to determine necessary sample sizes for validating discards at-sea.

Recommendations:

- Any census-style logbook reporting program should have vessel activity validation methods to measure and account for incomplete reporting. This is important both for achieving an accurate estimate for the total number of trips and accounting for unreported catch.
- Released catch represents a major portion of total catch and contributes significantly to total fishing mortality for many managed fisheries in the Gulf of Mexico. In this study, neither logbook trip reports nor dockside validations provided accurate estimates for released catch; therefore, it is highly recommended that some form of at-sea validation methodology be incorporated into logbook validations. For harvested catch, data from dockside validations and logbook trip reports were similar in aggregate; therefore a combination of dockside and at-sea validation methods may be employed.

Feasibility for Regional Implementation

Several potential benefits from a logbook reporting system were recognized from this study, and we do not rule out logbook reporting as a feasible method for the collection of catch and effort statistics from the for-hire sector. Given adequate resources and long-term funding commitments, this method would be feasible for a large geographic area with a large number of vessels, but may not be feasible for small states or regions with small numbers of vessels. This study included only charter vessels with federal permits, and regional implementation would also need to consider whether to include vessels that do not possess federal permits and mechanisms to require and adequately enforce logbook reporting, or else exclude those vessels from logbook reporting and survey them separately. Challenges to surveying small, inshore guide vessels in current survey methods would also apply to field validation sampling if they were required to report in a logbook program.

Recommendations:

- If logbooks are implemented on a large regional scale, implementation should be phased in at smaller regional scales so that adequate resources can be dedicated to necessary up-front efforts for outreach and follow-up with non-respondents to achieve high compliance.
- A regional logbook reporting program should exclude non-federally permitted vessels unless each state has authority to require reporting and a mechanism to enforce timely reporting.
- State license frames are often not adequate for identifying all vessels in a fishery, and a complete universe of known vessels is recommended before mandatory logbook reporting is implemented for all for-hire vessels in a region.



NOAA FISHERIES

Key Takeaways At a Glance

- ◆ Based on the pilot study, the potential exists for using logbook data in conjunction with dockside validation as a useful means of estimating for-hire catch.
- ◆ It is clear that the immediate implementation of a logbook program is not likely to achieve a complete and accurate census of catch in the for-hire fishery.
- ◆ Moving forward, implementing an effective logbook-based survey would require a strategy by all data partners to address a range of resource, compliance, validation, outreach and related issues.

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Gulf of Mexico For-Hire Pilot Study

Overview

In its 2006 review of NOAA Fisheries data collection methods, the National Research Council (NRC) recognized the data collection and estimation challenges presented by the “hybrid” nature of the for-hire fishery, which shares characteristics of both commercial and recreational fishing. Among its recommendations for addressing these challenges, the NRC stated that:

“In most cases, charter boat, head boat, and other for-hire recreational fishing operations should be required to maintain logbooks of fish landed and kept, as well as fish caught and released. Providing the information should be mandatory for continued operation in this sector, and all the information should be verifiable and made available to the survey program in a timely manner.”

Working collaboratively with state partners, for-hire operators and other stakeholders, in 2010 MRIP launched a pilot study in the Gulf of Mexico to determine the feasibility of conducting a census of charter boats using electronic reporting methods. The findings of the study were evaluated through an independent peer review and the project team’s final report was approved by the MRIP Executive Steering Committee. The report, which includes detailed information on the research team, objectives, design, methodology, findings and recommendations is available through the projects database at www.countmyfish.noaa.gov.

Implications and Next Steps

Based on the pilot study, it is clear that immediate implementation of a logbook requirement for federal permit holders is not likely to achieve a complete and accurate census of catch.

- ◆ To address the findings and recommendations of the pilot study, more work is needed to develop an effective logbook-based census or estimation design that can be certified by MRIP.
- ◆ Until new certified methods are developed and ready for implementation by our partners, MRIP expects to maintain the current surveys of the for-hire sector, incorporating improvements that have already been made to our catch surveys. These improvements include:
 - Collecting data on the number of angler trips and other information from a sample frame of registered vessel operators, as recommended by the NRC;
 - Working to build a more complete and accurate registry of for-hire vessels;
 - Developing an improved estimation method for calculating catch estimates from intercept data; and
 - Implementing a new, design-unbiased, angler catch survey.

Continued ➤

NOAA Fisheries is an agency within the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). NOAA's mission is to understand and predict changes in the earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social and environmental needs. The NOAA Fisheries Service provides world class science and stewardship.

The Marine Recreational Information Program, or MRIP, is the new way NOAA Fisheries is collecting, analyzing and reporting recreational fishing data. MRIP gathers catch information through in-person surveys of anglers taken at the completion of a fishing trip.

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Gulf of Mexico For-Hire Pilot Study

Simultaneously, we will work with our regional data collection partners, the Atlantic Coastal Cooperative Statistics Program (ACCSP) and the Gulf Fisheries Information Network (FIN), to explore the potential for establishing logbook and validation programs that complement our current surveys. The role of MRIP will be to:

- ◆ Help incorporate findings and lessons learned from the pilot study into these programs;
- ◆ Support further studies that lead to MRIP certification of a trip reporting and validation methodology; and
- ◆ Potentially assist with the implementation of new methods through technical and funding support.

Next Steps for Regional Implementation

- ◆ MRIP was conceived from the beginning as a series of regional data collection programs all adhering to a rigorous set of national scientific standards. As outlined in our 2013 Implementation Plan Update, the MRIP strategy for implementation of new survey methods will continue to follow the national standards/regional surveys model.
 - NOAA Fisheries (through MRIP) will maintain a central role in developing and certifying survey methods and establishing national standards and best practices.
 - The regions (through the regional FINs or their equivalents) will have responsibility for selecting survey methods, identifying needs and priorities for enhanced data collection (i.e. for improved coverage, timeliness, precision, and special needs), and managing data collection.

While each regional electronic logbook program ultimately created will be unique, the pilot study indicated there are a set of common issues that MRIP and the FINs must jointly address for successful implementation. These include:

- ◆ Identification of all eligible vessels, including non-federal permit holders;
- ◆ Additional or alternative methods and strategies to enhance independent validation of logbook reports beyond dockside sampling;
- ◆ Assuring compliance in a timely manner through such potential means as permit sanctions, civil penalties, enforcement actions, etc.;
- ◆ Development and approval of “user-friendly” reporting technologies in consultation with the industry;
- ◆ Testing, development and implementation of new sampling survey designs; and
- ◆ Shared resource commitments to address implementation issues, including:
 - Building, maintaining and operating systems to receive electronic logbook data and perform data quality analysis, editing and integration;
 - Dockside sampling for validation of landings and at-sea sampling for validation of released catch;
 - Compliance and enforcement actions; and
 - Outreach activities to inform vessel operators of reporting requirements, which include the tracking of reporting and issuing reminder notifications.