



MARINE RECREATIONAL INFORMATION PROGRAM

Implementation Plan
Revision 3: 2011-2012 Update
December 2011



To help ensure the long-term sustainability of U.S. fisheries through enhanced estimates of marine recreational catch and effort, a partnership of public and private organizations is developing the Marine Recreational Information Program, an improved national system of regional surveys. This Implementation Plan outlines the history of the program, its current status, and future course.

Marine Recreational Information Program Implementation Plan: 2011/2012 Update

October 2011

The *MRIP Implementation Plan* is a joint product of the MRIP Operations, Communication and Education, Information Management, and Angler Registry Teams prepared with guidance from the Executive Steering Committee. The Implementation Plan provides an update on progress to date, as well as the blueprint for putting MRIP into action. A dynamic document, the *Implementation Plan* will continue to evolve in response to the latest science and the emerging needs of fisheries managers, regulators, policy makers and stakeholders.

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MRIP Implementation Plan

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Executive Summary

The Marine Recreational Information Program, or MRIP, is NOAA Fisheries' new way of counting and reporting marine recreational catch and effort. Initiated in 2008, MRIP is a customer-driven effort that will produce better estimates through a process grounded in the principles of transparency, accountability and engagement. MRIP replaces an array of data programs including the Marine Recreational Fisheries Statistics Survey, or MRFSS.

MRIP is designed to provide the detailed, timely, scientifically sound estimates that fisheries managers, stock assessors and marine scientists need to ensure the sustainability of ocean resources, while at the same time addressing stakeholder concerns about the reliability and credibility of recreational fishing catch and effort estimates. The program is being implemented in three concurrent phases: **Evaluation** of current methods, **Innovation** to identify and test new methods, and **Activation** of proven methodologies.

This *MRIP Implementation Plan: 2011/2012 Update* provides information on MRIP activities and the status of pilot projects since the last update of the Implementation Plan, which was issued in October, 2010. Readers may refer to that plan – available online at www.countmyfish.noaa.gov/newsroom – as well as other resources available on the site for more information on the program's background, priorities, strategy, organization and decision-making process.

2010-2011 Highlights

A complete description of accomplishments and activities over the past year is included in the body of this report. Among the major achievements are:

Utilizing the National Saltwater Angler Registry

By October 2011, every state and territory in the nation, with the exceptions of Hawaii, Puerto Rico and the U.S. Virgin Islands had implemented their own licensing or registration systems and established Memoranda of Agreement with NOAA Fisheries to share angler data. This enables anglers fishing in these so-called exempted states to forgo signing up separately with the national Registry as long as they are compliant with the laws in the state where they are fishing.

Testing Alternative Effort Survey Approaches

Comprehensive inclusion of all anglers in the National Saltwater Angler Registry will allow NOAA Fisheries to utilize the Registry as a directory for collecting anglers' effort or trip data. Currently, MRIP teams are testing a variety of survey methods that include registry-based sample frames. Pilot testing of these various approaches will continue through 2012 with a goal of full-scale Atlantic and Gulf Coast implementation in 2013.

Creating a New Catch Estimation Methodology

NOAA Fisheries scientists, in partnership with leading experts in the field of survey statistics, have created an improved method for estimating recreational catch using data from the existing shoreside angler survey known as the Access Point Angler Intercept Survey (APAIS). The new methodology addresses a major concern of the National Research Council's evaluation of MRFSS; namely, the NRC noted that the MRFSS catch estimation method was not correctly

matched with the sampling design used for the APAIS, leading to potential bias in the estimates. By eliminating this potential source of bias, the new estimation methodology improves the accuracy of the catch estimates. Improving the way estimates are calculated is an important first step in addressing the overall quality of the statistical surveys used for monitoring recreational fishing catches.

Currently, NOAA Fisheries is in the process of using this improved estimation method to revise catch estimates for 2004 – 2011 for the Gulf and Atlantic Coasts. Upon completion of a rigorous review of both our new estimation methods as well their potential impact on stock assessments and management, NOAA anticipates releasing the revised MRIP catch estimates in early 2012.

Improving Collection of Catch Data

In corollary to the improved estimation method, MRIP teams concluded a pilot study in North Carolina to evaluate a new sampling design for an access point intercept survey that could provide better coverage of different types of fishing trips and eliminate possible biases introduced by allowing samplers too much flexibility in the selection of interviewing locations and time periods. The two projects are inter-related because the new estimation method was developed to properly account for the probability-based sampling design of the APAIS and the North Carolina pilot study is aimed at correcting potential sources of bias in the in the sampling design itself. As described in the chart below, MRIP is challenging the way we've done things in the past through rigorous scientific testing and evaluation of our statistical methods.

WHAT WE'RE TESTING	WHAT WE'VE DONE IN THE PAST	WHAT WE'RE EVALUATING FOR THE FUTURE
How samplers gather information.	Samplers had some discretion in which sites to go to and in what order.	Samplers will conduct interviews at a specific cluster of sites in a specific randomized order, ensuring more structured sampling and less sampler discretion.
Where samplers interview.	Samplers were directed to maximize the number of angler interviews, potentially creating a bias toward peak times and popular areas.	Samplers will now be directed to maximize the number of sites visited – including continuing to visit sites where there is no or low fishing activity – to ensure a more representative look at fishing activity across a geographic area.
When samplers conduct interviews.	Little or no sampling was done late at night.	Samplers will now work during all day parts, including at night, because the number of people fishing and what they're catching can vary greatly during different times of the day.
Unit of measure	Our primary unit of measure for the purposes of making estimates was number of angler trips sampled.	Our analysis found that the more appropriate measure is the number of site days sampled, or all activity that takes place at a given site across a 24-hour period.

Improving Data Timeliness

In the spring of 2011, scientists, managers, and anglers met in St. Petersburg, FL for a workshop aimed at expanding efforts and evaluating options to report out more timely recreational fishing catch and effort estimates.

Concerns regarding the timeliness of the estimates, especially with respect to its impact on Annual Catch Limits and Accountability Measures, served as a discussion point among representatives from NOAA Fisheries, the Councils, Commissions, States, and the recreational community. Workshop participants looked at scientific and management strategies for improving the timeliness of catch data and meeting our Congressional mandates for setting Annual Catch Limits and Accountability Measures. A video blog and workshop summary from the conference are available at www.countmyfish.noaa.gov.

Accomplishments and Priorities

With the completion of the new catch estimation method for the Atlantic and Gulf of Mexico recreational fisheries, the MRIP team has corrected a fundamental design issue identified by the NRC. In so doing, we have laid the foundation necessary to enable us – pending available resources – to develop new tools and implement new strategies for delivering ever more timely and precise data to meet emerging stakeholder needs. Such decisions will require discussions regarding tradeoffs and priority-setting among the numerous options available. In the immediate term, the MRIP team is focused on finalizing and facilitating the transition to the new estimates; taking what we have learned and applying it to other data collection methods and programs; and continuing our work to ensure our broad range of stakeholders are informed and engaged in the process.

Saltwater Angler Registry Team

Implementation of National Saltwater Angler Registry

Section 401(g)(1) of the 2007 reauthorization of the Magnuson-Stevens Act (MSRA) requires the Secretary of Commerce to register, and collect identification and contact information for, anglers and for-hire vessels if they fish in the Exclusive Economic Zone (EEZ), for Continental Shelf fishery resources beyond the EEZ, or for anadromous species throughout their range, including state waters. Further, the Secretary is to exempt from the federal registration requirement those anglers and vessels that are licensed or registered by a state if the state provides sufficient identification and contact information for use in recreational surveys. The resultant federal registry must address both the qualifications and procedures for registering anglers and vessels and for exempting qualified states' anglers and vessels from the federal registration requirement.

A Notice of Final Rulemaking was published in the Federal Register on December 30, 2008. The scope of the rule includes: the standards and process by which states may apply for exempted state designation based on their provision of license/registry-based sample frames; the standards and process by which states may apply for exempted state designation based on use of state license/registry data to perform surveys of recreational catch and effort; the detailed requirements and process by which anglers and for-hire vessels from non-exempt states enroll in the federal registry, and requirements for registration fees beginning January 1, 2011. A summary of the Final Rule is included as Appendix C.

During 2010 and 2011, NOAA Fisheries entered into Memoranda of Agreement (MOAs) with each of the states that qualify for Exempted State designation. Pursuant to the MOAs, those states have been formally designated as Exempted States, and the states have begun to submit data as called for in the MOAs. The Exempted States are:

- For submission of state license holder or registry data: Texas; Louisiana; Mississippi; Alabama; Florida; Georgia; South Carolina; North Carolina; Virginia; District of Columbia; Maryland; Pennsylvania; Delaware; New Jersey; New York; Connecticut; Rhode Island; Massachusetts; New Hampshire; Maine.
- For participation in and submission of catch data from an approved regional survey: Alaska; Washington; Oregon; California; Guam; American Samoa; Commonwealth of the Northern Mariana Islands.

Beginning with the FY 2010 budget appropriation, NOAA Fisheries began providing financial assistance to states to support the development of state registration and/or licensing programs that meet the requirements for development and maintenance of a complete and regularly updated National Registry of marine recreational fishing participants. The initial round of project funding occurred in the fall of 2010, and a second round will take place in 2012.

Priorities for 2011/2012 include:

- Complete rulemaking to update and adjust the final rule for the Registry Program to reflect experience with the existing registration and state exemption process;
- Complete evaluations of the initial state registry data feeds and make recommendations to the states for cleanup and enhancement of their databases, and for the content of state registry data improvement plans that are provided for in their MOAs;
- Review state registry data improvement plans;
- Establish process for states to provide data to NOAA;
- Provide grants to states to support actions needed to implement the data improvement plans or other commitments of their MOAs.

Operations Team

The Operations Team (OT) is charged with developing and recommending improvements to data collection programs under the auspices of MRIP. Each year, the OT identifies and prioritizes research needs that respond to the recommendations of the NRC Review or address congressional mandates and emerging management and science needs. Research needs are subsequently addressed through the development and implementation of research projects designed by experts in survey design and management, natural resource management, and stock assessment. In 2011, OT members worked with their respective constituencies to design regional projects focused on improving the accuracy of recreational fisheries statistics.

Since 2007, the OT has funded more than 40 projects to develop improved sampling and estimation designs. Appendix A provides descriptions of all of the OT projects. Activities during the past year are characterized by the following projects:

New Estimation Design for Catch per Unit of Effort

The NRC Review suggested that, “The estimation procedure for information gathered onsite does not use nominal or actual selection probabilities of the sampling design and, therefore, has the potential to produce biased estimates of both the parameters of interest and their variances.” In addition, the Review stated that, “assumptions should be examined and verified so that biases can be properly evaluated.” To address these concerns, MRIP initiated a project to assess the current estimation design for the MRFSS APAIS survey, which collects catch data from completed recreational fishing trips to estimate catch per unit of effort (CPUE).

This project has resulted in a revised estimation design that addresses the NRC’s concerns. The improved estimation design, which has been peer reviewed, endorsed by the OT, certified by the Executive Steering Committee and approved by the NOAA Assistant Administrator for Fisheries, will be used to revise historical catch and effort estimates for the period of 2004-2011. MRIP is currently working with fisheries managers and stock assessment scientists to assess the

impact of revised estimates on regulatory actions and decisions. Revised estimates will be published once this assessment has been completed.

Pilot Study to Test Alternative Sampling Design for Intercept Survey

As with the estimation design, the NRC Review criticized the sampling design of the APAIS for its reliance on unverified assumptions. In addition, the NRC suggested that, “the onsite sampling frame for the MRFSS should be redesigned” and that “the sampling process requires greater quality control.” These concerns are being addressed through a revised sampling design that includes an updated sampling frame; eliminates interviewer latitude in selecting interviewing sites; establishes discrete sampling periods of fixed duration, including nighttime sampling; and requires interviewers to collect detailed information about the number of completed boat and angler fishing trips during the sampling period. The new sampling design was tested in a year-long pilot study that was completed in December 2010. Results of the pilot study are currently being evaluated.

Development and Implementation of Studies to Test Registry Surveys

The NRC Review recommended that, “future telephone surveys should be based upon a universal sampling frame,” and that in the absence of such a frame, “dual-frame procedures should be used whenever possible to reduce sample bias.” Subsequently, MSRA mandated “the use of surveys that target anglers registered or licensed at the State or Federal level to collect participation and effort data.” In addition to implementing the National Saltwater Angler Registry, MRIP has implemented several studies to develop and test registry-based sampling methods.

In 2007, following the publication of the NRC Review, NOAA Fisheries and the Gulf States Marine Fisheries Commission implemented angler license directory surveys (ALDS) in Florida, Alabama, Mississippi, and Louisiana. These surveys include telephone interviews of individuals sampled from license databases in the participating states. Recognizing that the license sample frames in all states were incomplete due to exemptions to licensing requirements, ALDS sample frames were integrated with current Coastal Household Telephone Survey (CHTS) sample frames in a dual-frame approach. The dual-frame telephone survey design has resulted in improved coverage over either independent telephone survey. However, the success of the methodology is limited by several factors, including missing or incomplete contact information on license sample frames, and the ubiquitous trend of decreasing response rates in telephone surveys. In addition, a key component of any dual-frame survey is the ability to identify overlapping sample frame units accurately (i.e., anglers who could be sampled from both frames). The ability to match telephone survey sample frames is limited by missing or inaccurate telephone numbers, as well as the occurrence of mobile telephone numbers on ALDS sample frames.

Recognizing the limitations of the dual-frame telephone survey approach, dual-frame mail surveys, which sample from databases of licensed anglers and comprehensive lists of residential addresses serviced by the U.S. Postal Service, have been designed and tested. The pilot tests have resulted in greater coverage and response rates than telephone survey designs. Current efforts are examining methods to further improve response rates, minimize potential sources of non-sampling error and increase the timeliness of data collection. A large-scale pilot study

testing new survey methods will be implemented in the South Atlantic Region in the fall of 2011 and continue throughout 2012. It is anticipated that the survey will be expanded to additional states as results of the pilot study are evaluated.

Panel Study to Assess Bias Resulting from Under-coverage of Intercept Sample Frames

The NRC Review noted, “onsite methods fail to intercept anglers who have private access to fishing waters, or intercept them only sporadically.” As a result of this undercoverage of the APAIS sample frame, the estimation design assumes that these anglers target similar species, experience similar success, and have similar residency characteristics as anglers who fish from access sites that are included on APAIS sample frames. This assumption is being tested in a study that will collect both catch and effort data through a longitudinal panel design. The study, which was implemented in North Carolina and Florida in August 2011, is recruiting panelists through each state’s angler license database, as well as residential address frames. Panelists are being asked to record trip characteristics and catch data and submit monthly reports through interviewer-initiated telephone interviews or an online questionnaire. Results of the study, which will continue through July 2012, will be used to compare trip and catch characteristics between trips that conclude at accessible and non-accessible fishing sites. In addition, the study will test the feasibility of collecting catch and effort data through an offsite panel study design.

Logbook Survey Design for the For-Hire fishery

The NRC Review concluded that, “charter, party 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.” An MRIP follow-up review of for-hire specific data collections identified “best practice methods” for collecting catch and effort data from the for-hire sector. Specific recommendations of the MRIP review included: 1) weekly logbook reporting, 2) development of an online reporting mechanism, 3) telephone follow-up of non-responding vessels, and 4) verification of reported data through dockside observation. To address these recommendations, MRIP has developed a logbook-reporting program that is being tested in Florida and Texas. The study, which was implemented in September 2011 and includes all federally permitted for-hire vessels in the Port Aransas region of Texas and the panhandle region of Florida, is testing the feasibility of implementing a survey design that combines electronic logbook reporting with independent dockside sampling for validation purposes. The data collection design will be evaluated in terms of cost, timeliness of reporting, completeness of reporting, level of participation, and accuracy.

Review of Pacific RecFIN Surveys

In 2010, MRIP funded a project to evaluate the sampling and estimation designs of several recreational fishing surveys administered by Pacific RecFIN and the state natural resource agencies in WA and OR. These assessments were conducted by a team of expert consultants working in conjunction with state agency staff and completed in February 2011 and resulted in reports describing potential sources of bias and possible methodological improvements to evaluate and implement for each of the survey programs. These recommendations have resulted in follow-up studies that will be implemented beginning in 2011 and will test improved data collection designs.

In addition, MRIP and Pacific RecFIN have sponsored an expert consultant review of the California Recreational Fisheries Survey (CRFS) survey designs. A team of consultants convened with California Department of Fish and Game staff in June 2011 to evaluate the CRFS sampling and estimation methods. A report identifying potential sources of bias and recommending improvements to sampling and estimation designs is currently being developed.

Review of Data Collection Methods for Highly Migratory Species

The OT has invested significant resources in characterizing highly migratory species (HMS) fisheries and assessing the effectiveness of various methodologies in collecting HMS catch and effort data. Specifically, the OT has funded projects to characterize and quantify the magnitude of HMS fisheries in the South Atlantic, Gulf of Mexico and Caribbean subregions, assess and improve compliance with mandatory HMS landings reporting requirements, determine the extent of landings in HMS-specific fishing tournaments, and assess the ability of current survey designs to cover different types of HMS fishing activity, including tournament fishing and night fishing. These projects have resulted in the development of new and revised survey designs that will be tested in 2012.

Information Management Team

The NRC Review identified several specific responsibilities for NOAA Fisheries in developing a national statistical program, including nationally consistent standards for data and metadata, maintenance of a central data warehouse for marine recreational fisheries, and development of appropriate dissemination tools. The Information Management Team (IMT) is charged with supporting the national-level processing and management of data. The IMT facilitates coordination and ensures the comparability and compatibility of fishing statistics among regional data collection programs.

MRIP Data Management System (MDMS) Enhancements

In 2010 and 2011, NOAA Fisheries authorized two data management directives that guide procedures, decisions, and actions regarding data, information ownership, and information management. The directives affirm the IMT's goals, by requiring that all NOAA Fisheries data shall be visible, accessible and understandable. To streamline the collection of documentation for MRIP projects, project management tools were added to the online MRIP Data Management System (MDMS). All project management tasks are now managed via MDMS. Proposals are submitted, edited, and approved without needing to send multiple emails and attachments. Monthly updates are provided online, without additional program management support needed to compile or monitor submission. Email reminders are managed automatically by MDMS. All documentation is available to users and, where appropriate, also available for public access. The IMT will coordinate with the Communications and Education Team (CET) on further utilizing MDMS as a communication tool in 2012.

Intercept Site Register Improvements

To improve the management and quality of the data used for the selection of samples in the APAIS, a new online site register will be created. Currently contractors and partners maintain independent site registers, particular to their region. The new site register will have tools for contractors, and staff to edit and update site records. Changes to site information will be tracked

over time. The new tool will also provide mapping capabilities. The public will have access to general site and fishing information. The database and tools will be maintained by NOAA Fisheries to ensure a high level of data quality, maintain consistency between regions, and increase sampling efficiency.

Query Enhancements

The standard NOAA Fisheries website query tools available to the public will be enhanced in 2012. The existing queries will be enhanced with additional selection options, output options, and graphics. The tables have been updated to improve the users' experience, and provide a clearer representation of our data. A query that covers all U.S. coastal states will be added, expanding our standard coverage to include data provided by the Texas Parks and Wildlife Department, the Pacific States Marine Fisheries Commission, and the Alaska Department of Fish and Game. Additional queries will be added to compare MRFSS and MRIP estimates, as those estimates are made available. Input from the CET will be used to assure that enhancements meet the needs of our users.

Communications and Education Team

In coordination with the other MRIP teams, the Communications and Education Team (CET) works on a variety of projects to keep those with a stake in recreational fishing data engaged in our work and updated on our progress and developments. In 2011, these efforts included:

Communications support for the development and release of the new MRIP catch estimation method.

Creation of a new catch estimation method addressed one of the major recommendations made as part of the NRC's review of MRFSS. In support of this major milestone, the CET designed a communication strategy for rolling out the new methodology. The strategy involved reaching out to many leaders and influencers in the recreational fishing community, states, councils, commissions, and internal NOAA offices. This informal gathering of stakeholders, known as the Observer Team, served as both a sounding board for the presentation of complex methodology and a discussion forum where stakeholders could learn about the new methodology and get their questions answered.

The CET was responsible for engaging the Observer Team in the process and updating them on the progress of the new method as it was developed. The CET organized a series of in-person and online briefings with the Observer Team and other key stakeholders including the ASMFC policy board, Council chairs and executive directors, and MAFAC's Recreational Fishing Working Group. The CET developed presentation materials to explain the impetus behind the new methodology and how it will be implemented in the future. The CET solicited feedback and answered questions after each presentation to make sure our stakeholders understood the process and that their needs were being met.

MRIP Project Support

In an effort to aid MRIP project leaders communicate effectively with constituents about the progress and developments of their projects, the CET developed a "communications best practices" document. The best practices document guides our science partners through the

different parts of a communications strategy. The documents refer project leaders to the CET for additional support.

The CET added to our MRIP video library by creating two new videos for the MRIP website to highlight the work of the projects. We visited St. Petersburg, FL this year to film a video about an ongoing MRIP funded project examining the use of on-board video cameras to capture more accurate data on released fish. Through a series of interviews and imagery, the short video explains the purpose of the pilot project, how the video system works, and its role in MRIP.

Also in St. Petersburg, FL, the CET supported the MRIP Timeliness Workshop, where stakeholders gathered to discuss the importance of timely data and discuss ways to improve data timeliness. The CET created a video blog that included a series of interviews with various stakeholders to capture the conference's discussions. Both videos are available on the MRIP website.

MRIP Stakeholder Updates

The CET emails a regular newsletter, called a "Newscast," to keep stakeholders engaged and up-to-date. The Newscast chronicles MRIP progress and developments and provides contact information for stakeholders who have questions or comments.

2011 MRIP Brochure

Responding to stakeholders' needs for information about the program, the CET created an MRIP Brochure containing information about the new estimation method to be distributed to stakeholders in the recreational fishing community, including state partners, Councils and Commissions, and tackle shops and members of the media. The CET used focus groups of anglers and partners to refine the content and messaging in a way that best reaches stakeholders and addresses their concerns and questions.

Ongoing Angler Registry Outreach

Anglers in many coastal states witnessed changes to their registration requirements in 2011. First, a new \$15 registration fee went into effect on January 1, 2011. At the same time, most anglers who registered in 2010 no longer needed to register in 2011 as all but three states and territories were designated exempted by NOAA. Anticipating the potential for confusion, the CET worked with the Angler Registry Team and the coastal states to inform anglers about the changes. The CET used the media, a refined set of outreach products, and a redesigned online registration site, to supply anglers with clear and accurate information on the new registration requirements.

Priorities for 2011/2012 include:

- **The release of catch estimates using the new catch estimation method.** The CET will continue to provide strategic communications support for this important milestone into 2012. As the new catch estimates are released, the CET will develop consistent, accurate messaging to be used by all MRIP and NOAA representatives to explain the new data and its implications. This roll out will include a suite of materials including a management guidance document, fact sheet explaining the new numbers and implications

to stakeholders, presentations, and talking points. The CET will also help coordinate Capitol Hill, media, and stakeholder briefings.

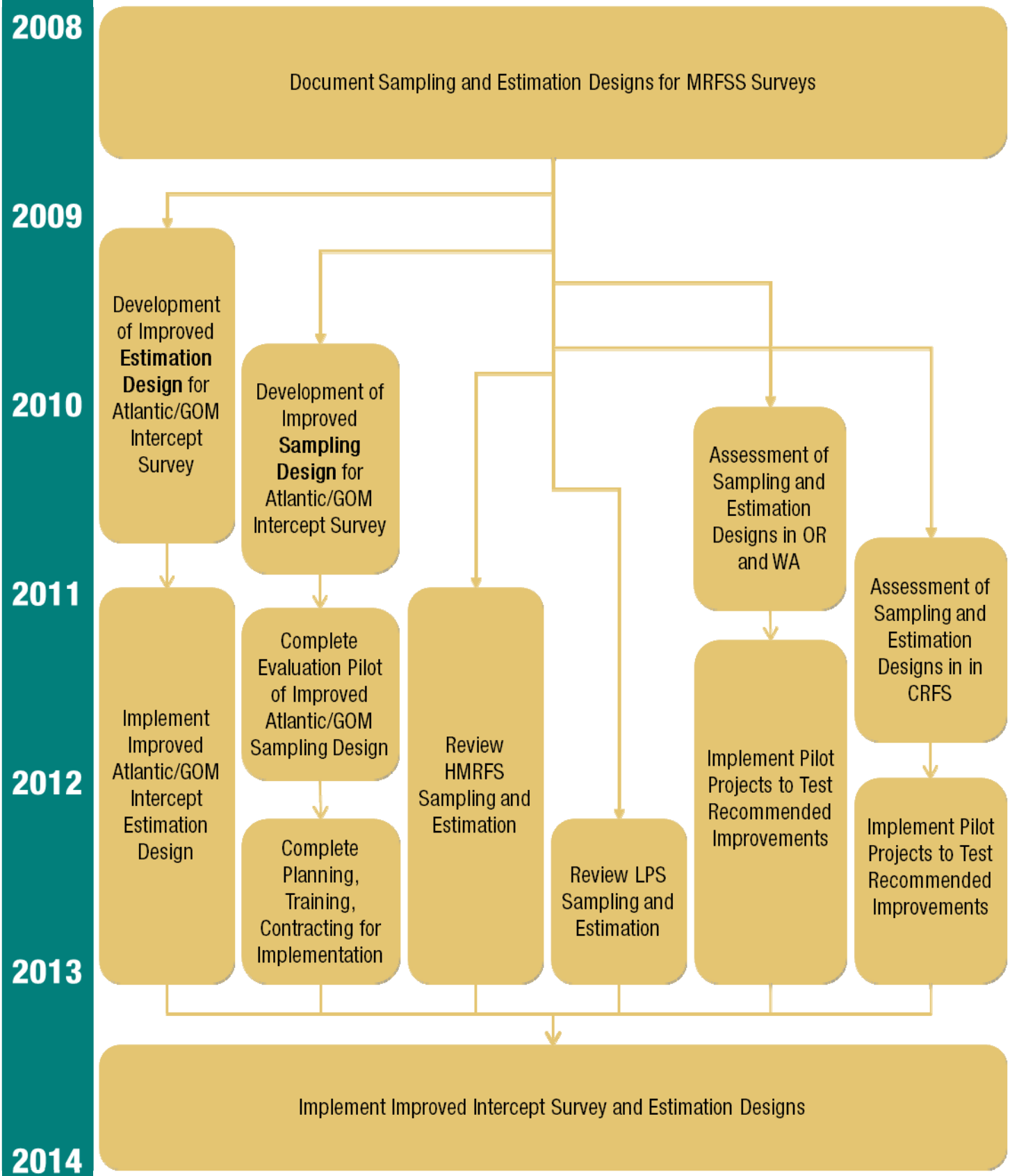
- **Implementation of other improvements to the data collection and reporting.** With a number of improvements scheduled for implementation in 2012 (including an enhanced Access Point Angler Intercept Survey (APAIS) design and workshop on volunteer angler data collection), the CET will provide strategic communications support to ensure stakeholders are informed of the pending improvements.
- **Creating more user-friendly methods of communicating information and updates with stakeholders.** The CET is constantly developing ways to expand MRIP's transparency by presenting information in clear, user-friendly ways. We will work with the IMT to enhance the public-facing component of MDMS so stakeholders can visit the MRIP website to see status updates on completed, ongoing, and funded MRIP projects. The CET is also working with the IMT on improving our web query tools to better meet the needs of those who use them. Additionally, we are working towards an overall improved website with more dynamic content, interactive graphics, and up-to-date information.
- **Conduct a regional listening tour.** As the NRC noted, MRIP cannot succeed – regardless of the quality of the methodology and statistics – absent a core element of stakeholder trust. Implementation of the first major methodological improvements provides an opportunity to both engage with anglers on recent MRIP progress and also maintain a dialogue about other ways in which to incorporate stakeholder concerns in MRIP. The CET will coordinate a regional listening tour beginning in late 2011 to meet with stakeholders and gather opinions and ideas.
- **Support Volunteer Angler Surveys Workshop.** As part of our listening tour, the CET will gather information and feedback to support a workshop – developed in cooperation with the Mid-Atlantic Fishery Management Council – to evaluate the potential utility of voluntary, angler-reported data collection programs. Numerous states and fishing organizations have experimented with collecting opportunistic information about anglers' catch and effort. From online surveys to smart phone apps, the workshop aims to examine how volunteer reports delivered through various types of data collection technologies could be used to supplement more comprehensive sampling programs. The workshop is tentatively scheduled for winter 2012.

Timeline for Improving the Accuracy of Recreational Fishing Data Collections

The following timelines reflect the past activity and anticipated advances of some of the highest priority survey improvements. MRIP will continue to develop and certify methodological enhancements that address NRC recommendations and can provide a full suite of acceptable survey designs. Further studies will be developing and testing additional enhancements including the following: (1) on-site survey designs for estimating fishing effort, (2) off-site panel survey designs for monitoring both fishing effort and catch, (3) improved methods for the collection of released catch data, (4) complemented survey designs for estimating marine recreational fishing participation, (5) specialized survey designs for specific directed fisheries, and (6) survey designs for monitoring recreational fishing interactions with protected species. MRIP will develop a suite of acceptable survey designs for use by both NOAA Fisheries and its various interstate commission and state agency partners in the implementation of new regional data collection programs.

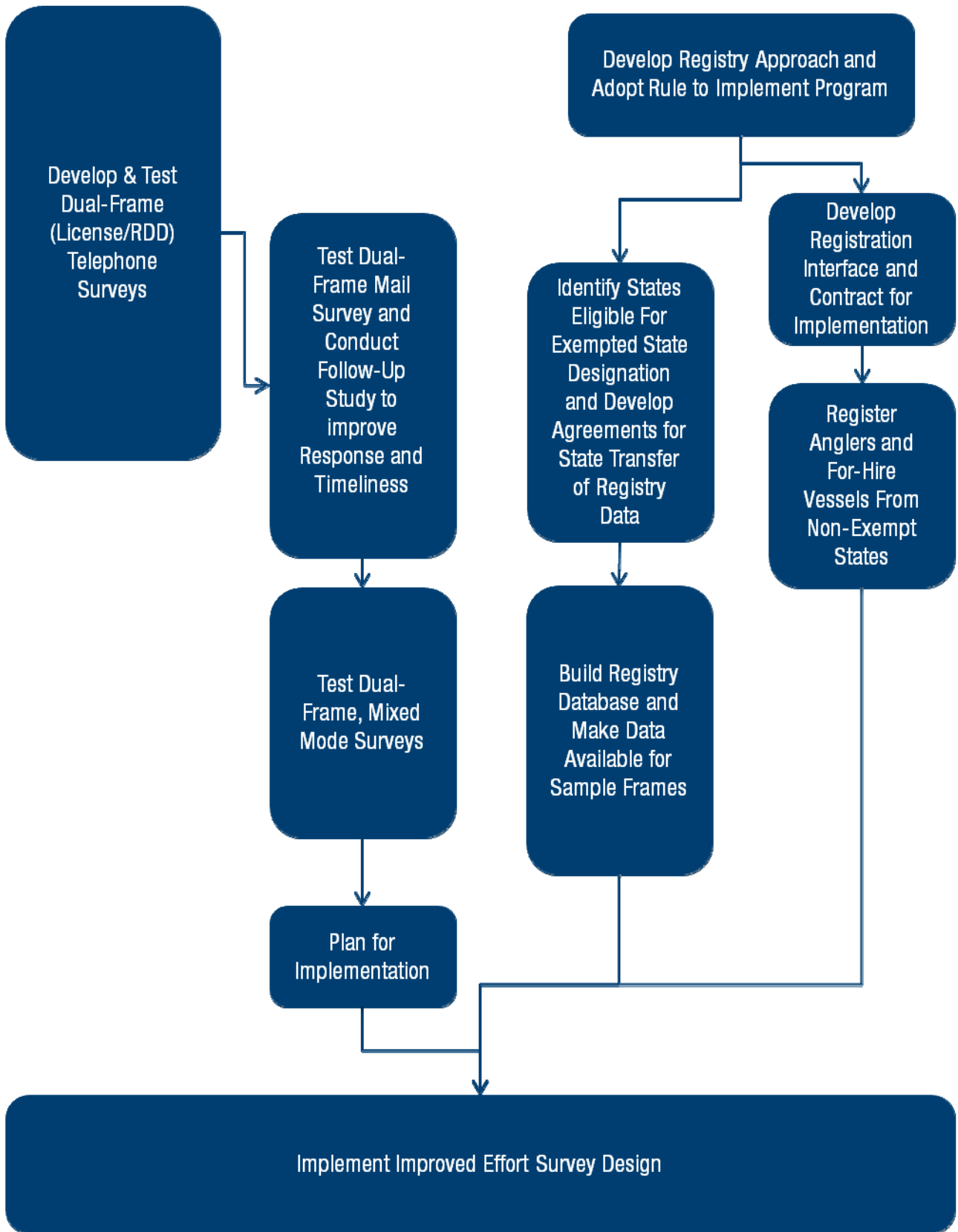
Once new methods have been implemented for the highest priority improvements, NOAA Fisheries will initiate survey improvements to address user needs for timeliness, resolution and precision. NOAA Fisheries will work with regional partners and stakeholders to identify and prioritize such needs on a regional basis, and will expand its data collections and revise its survey designs as appropriate, subject to availability of funds, for that purpose. Examples of improvements that could be considered for implementation include: increasing the frequency of surveys from bimonthly to monthly; shortening the period for completing data quality control and completing preliminary catch estimates; achieving targeted improvements in the proportional standard errors of catch estimates for different sample strata required for management actions; and providing catch estimates with acceptable levels of precision for a limited number of sub-state domains. Such improvements in survey data timeliness and resolution are directly responsive to the needs of fishery managers as expressed to MRIP by states, Fishery Management Councils, and NOAA Fisheries Regional Office and Fisheries Science Centers, and are directly responsive to the NRC recommendations regarding consultation with fishery managers to provide data that meets the requirements of modern fishery management programs.

Implement Improved Intercept Survey and Estimation Designs



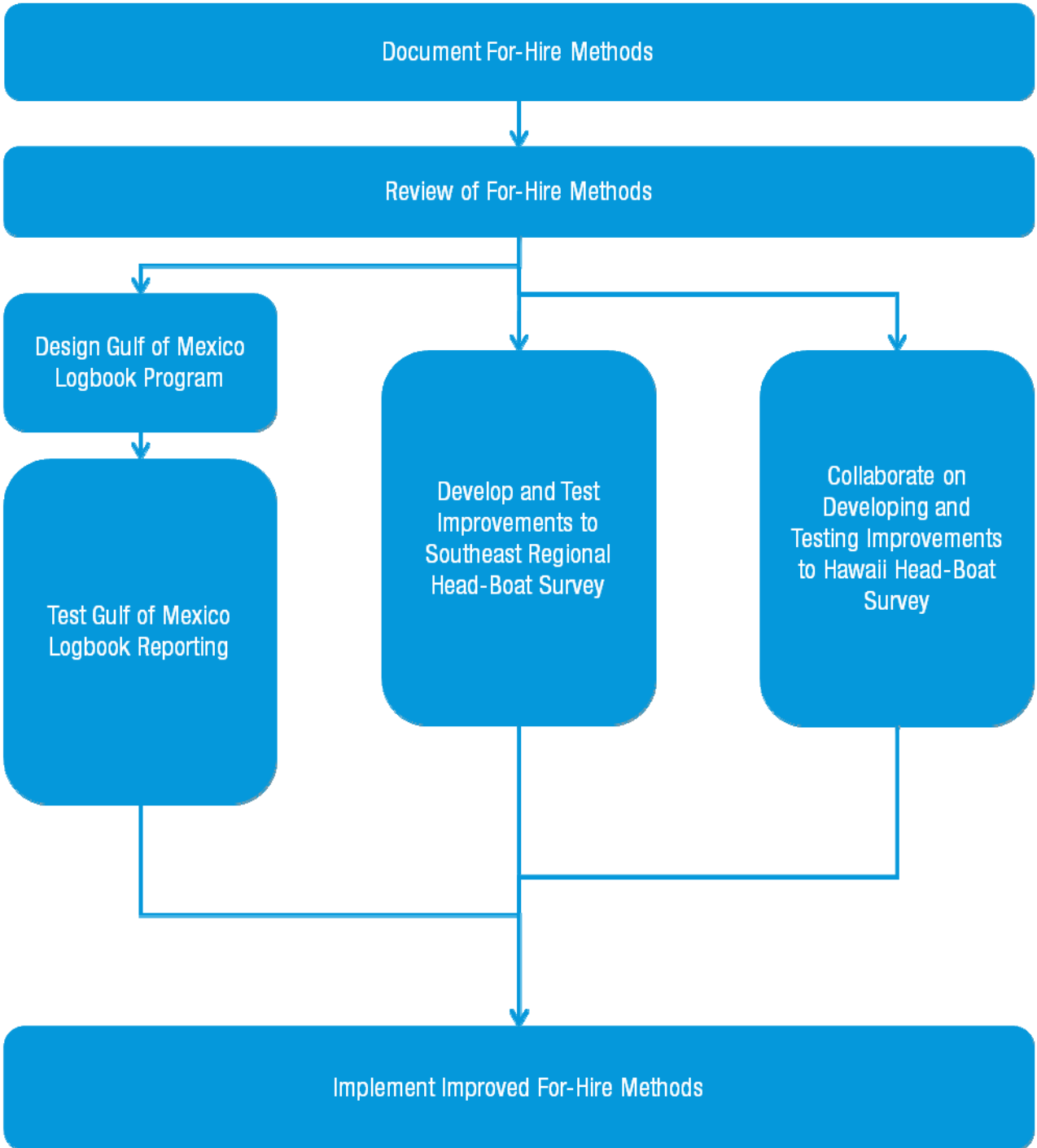
Implement Improved Effort Survey Design

2008
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Implement Improved For-Hire Methods

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Appendix A – Operations Team Projects (2008-2011)

OT Priority	Project	Description	Status	Outcome
Information Management	Develop MRIP Data Management System (MDMS)	Development of metadata application for documenting summary level information about surveys.	Complete	Development of a web-based metadata interface for MRIP.
	Document Ongoing Recreational Fishing Data Collection Programs	Compiled and entered into MDMS procedures, objectives, points of contact, scope, etc. of more than 75 data collection programs for recreational fishing.	Complete	Report describing functionality and current contents of MDMS.
	Develop MRIP Information Management System	Development of data archive and retrieval system for MRIP catch, effort, and participation data and statistics.	Ongoing	
Data Quality	Assessment of survey QA/QC procedures	Inventory and assessment of current quality control (QC) and quality assurance (QA) processes, including recommendations for improving QA/QC practices.	Ongoing	
Develop and Enhance Registry-Based Surveys	Continued development and testing of dual-frame surveys of fishing effort	Develop and test several design alternatives to address concerns about the timeliness of fishing effort surveys, and continue to improve response rates, data quality and efficiency of surveys. The study will measure the impact of data collection mode on survey response, coverage and measurement.	Funded 2011	
	WA Dual-Frame Telephone Survey	Integration of CHTS and ALDS into a dual-frame approach to expand survey coverage and improve precision of fishing effort surveys. Currently being conducted in WA.	Ongoing	

OT Priority	Project	Description	Status	Outcome
	Dual-Frame Mail Survey	Develop and test dual-frame mail survey approach for collecting recreational fishing effort data.	Complete	Report describing benefits and limitations of dual-frame mail survey approach, as well as recommendations for follow-up studies. Several of the recommendations were/are being tested in follow-up studies that were implemented in 2010 (e.g. Development of Alternative Procedures to Match Component Sample Frames in Dual-Frame Telephone Survey Approach, Dual-Frame Mail Survey: Enhancing Mail Response Rates).
	Development of alternative procedures to match component sample frames in dual-frame telephone survey approach	Develop more robust (less susceptible to reporting bias) methods for matching component sample frames in the dual-frame telephone survey approach.	Ongoing	
	Dual-Frame Mail Survey: Enhancing Survey Mail Response Rates	Testing different combinations of contact options (e.g. standard mail, special mail, telephone) to enhance response rates in the dual-frame mail survey approach. Will also provide a measure of non-response bias in the mail survey approach.	Ongoing	
	Measurement Error in the CHTS and ALDS: Assessing the Effects of Length of Recall Period on Data Quality	Assess the extent to which the length of the recall period impacts the quality of effort estimates in the CHTS/ALDS. Results will be applicable to other data collection modes.	Ongoing	

OT Priority	Project	Description	Status	Outcome
Assess and Enhance Sampling and Estimation Methods	Regionally Stratified Recreational Catch and Effort Estimates Using New MRIP Methodologies	Design and test a stratified sampling methodology that reflects the bio-geographical variability within Florida. The design will improve state-level precision and accuracy of catch estimates and provide resolution at the sub-regional level to support data needs for state and federal stock assessment and fisheries management.	Funded 2011	
	Addressing Preliminary Recommendations from the MRIP Sponsored Review of Monitoring of Washington's Ocean Sampling Program	Test recommendations resulting from the MRIP review of Washington's Ocean Sampling Program. The project will assess potential error resulting from under coverage by sampling all major ocean access ports during months that are currently not sampled.	Funded 2011	
	Review of Current Sampling and Estimation Methods for the California Recreational Fishery Survey (CRFS)	Review the current sampling and estimation designs of the California Recreational Fishery Survey and the NOAA Fisheries Large Pelagics Survey. Reviews will identify potential sources of bias, evaluate applications of sampling theory, and evaluate the utilization of sampling probabilities in estimation methods for both of these survey programs.	Funded 2011	

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	2011-12 Oregon Ocean Recreational Boat Survey (ORBS) Supplemental Sampling	Improve the accuracy and precision of catch and effort estimates produced by Oregon's Ocean Recreational Boat Survey (ORBS) by implementing recommendations from the MRIP review. The project will collect new data for un-/under-sampled ports/times and test current assumptions.	Funded 2011	
	Addressing MRIP Recommendations for the Puget Sound Recreational Fishery Monitoring Program	Improve the scientific rigor of monitoring and estimation approaches within the Washington Department of Fish and Wildlife's Puget Sound Recreational Fishery Monitoring Program by implementing improvements identified in the recent MRIP review of the program. Specific improvements include developing and implementing formalized site selection procedures and refining the survey's database structure to better reflect sampling designs.	Funded 2011	
	Development of a Stratified Sampling Design for Maryland Inland Waters	Support implementation of the improved MRIP Access Point Angler Intercept Survey (APAIS) design by updating and expanding the APAIS sample frame. The project will also support the stratification of MD inland water bodies into Chesapeake Bay and coastal bay strata.	Funded 2011	

OT Priority	Project	Description	Status	Outcome
	Document Sampling and Estimation Designs for MRFSS Surveys (CHTS, ALDS, Access-Point Intercept, FHS, LPS)	Develop technical documentation describing sampling and estimation approaches.	Complete	Report describing current sampling and estimation approaches for recreational fishing surveys administered by NOAA Fisheries.
	Development of Improved Estimation Methods for the Access Point Angler Intercept Survey	Develop estimation approaches that more closely match sampling design and account for selection probabilities.	Complete	A peer-reviewed report describing a new, design-unbiased estimation methodology. The new methodology has been endorsed by both the OT and ESC as a significant improvement over the traditional MRFSS estimation design. The report also includes recommendations for improving the Access-Point Angler Intercept Survey. These recommendations are being tested in the Pilot Study to Test New APAIS Sampling Design in NC.
	Pilot Study to Test New APAIS Sampling Design in NC	Development and testing of sampling design that more closely adheres to the principles of sampling theory. Methodology will be pilot tested in NC in 2010.	Ongoing	
	Review and Assessment of Methodologies Used to Estimate Recreational Fishing Participation	Identify and quantify potential sources of bias in MRFSS methodology used to estimate participation.	Ongoing	
	Hawaii Pilot Study to Improve Intercept Survey	Evaluation of HMRFS intercept survey design and historical data to determine if new MRIP estimation design can be applied.	Complete	MRIP estimation design for catch rate cannot be directly applied to historical HMRFS data. Alternative estimation designs should be explored. Sampling allocations for CHTS and intercept survey should be assessed relative to historical fishing pressure among islands.

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	Panel Survey Pilot Study to Quantify Differences between Trips Covered and Trips Not Covered by On-Site Intercept Surveys	Offsite (telephone and web) panel study to collect and compare catch data from anglers who access the water via accessible (public access) and inaccessible (private access) fishing sites. Study will be conducted in NC and FL.	Ongoing	
	Review Estimation Methods for ORBS and OSP	Review and assessment of sampling and estimation designs for WA Ocean Boat Survey and OR Recreational Boat Survey.	Complete	Consultant assessment of pros and cons for each of three data collection programs; WA Puget Sound Sampling Program, WA Ocean Sampling Program, OR Recreational Boat Survey. The report provides recommendations for improvements that could be tested in follow-up MRIP projects.
Develop and Test Alternative Methods for Collecting Discard Data	Characterizing Discards on Headboats	Comparison between angler-reported and observed discard data from headboat trips on the Atlantic Coast.	Complete	Report describing whether the existing MRFSS data from the Atlantic coast shows a systematically misreports discards. An examination of the data provided no support for the existence of recall bias of discards in headboat data. Further study was recommended to see if small number of species might suffer from consistent underreporting, or over reporting of discard.
	Video Assessment of Recreational Discards	Develop and test technology to monitor catch on private fishing vessels using vessel-mounted video cameras.	Ongoing	
Develop Improvements in For-Hire Data Collections	Documentation of ongoing for-hire data collection programs in the U.S.	Document ongoing U.S. for-hire data collection programs including survey methodologies and uses of the data and estimates.	Complete	Report describing current data collection methodologies for the for-hire sector. This information was utilized by a team of consultants in a follow-up study to assess the benefits and limitations of data collection methods for the for-hire sector.

OT Priority	Project	Description	Status	Outcome
	Independent review of ongoing for-hire data collection programs and methodologies	Review of ongoing methods used to estimate for-hire catch and effort by a panel of survey design experts.	Complete	Report describing "best practice" recommendations for monitoring recreational catch and effort for the for-hire fleet, and well as recommendations for improving ongoing data collection programs.
	PR For-Hire Data Collection	Development of an electronic reporting tool and testing of the feasibility of logbook reporting in Puerto Rico	Complete	Report describing catch and effort data from for-hire vessels in Puerto Rico via a mandatory census reporting program, and development and implementation of an electronic logbook program. The project ran into compliance issues, and current DNER regulations lacked the ability to enforce compliance. Further study was recommended after regulations are amended.
	Development of Probability Based Sampling Methods for Southeast Headboat Survey Dockside Intercept Sampling Program	Development of new methodology for the SRHS intercept survey that conforms to the principles of probability sampling.	Ongoing	
	Implementation of Probability Based Sampling methods for Southeast Region Headboat Survey Intercept Sampling Program	Implement pilot study to test revised SRHS intercept survey design.	Ongoing	
	Implementation of Electronic Logbooks on Headboats Operating in the U.S. South Atlantic	Development and testing of an online reporting tool for the SRHS.	Ongoing	

OT Priority	Project	Description	Status	Outcome
	Hawaii for-hire pilot study to incorporate validation procedures in the commercial marine license reporting program	Assessment of the completeness of the HI Commercial Marine License (CML) vessel frame, as well as the development and implementation of a dockside pilot study to validate information provided through the CML.	Complete	CML reporting compliance ranged from 47-69%. The report recommends several changes to the CML reporting program to improve reporting compliance and awareness of reporting requirements.
	Cooperative design of a logbook reporting program for the Gulf of Mexico	Develop recommendations from the for-hire review by designing a logbook reporting program for - hire vessels operating in the Gulf of Mexico.	Complete	Report detailing recommendations for a logbook reporting system for headboats in the gulf of Mexico. Recommendations for future projects included sample sizes, how clustering of sites should occur, intercept methods, and what biological information to collect during dockside interviews.
	Wave 1 Mid-Atlantic - Southern New England Data Collection Follow-Up	Conduct for-hire effort sampling in Wave 1 in 2012 in Virginia through Rhode Island.	Funded 2011	
	Mid-Atlantic For-Hire Survey Frames	Conduct a workshop to support the systematic development and maintenance of for-hire vessel sampling frames.	Funded 2011	
	Pilot project for alternative data collection methods: Testing the concept of vessel owner/captain data reporting	Test the feasibility of using existing vessel registries to conduct surveys of recreational fishing catch and effort. Results of the feasibility test will be used to develop a recreational fishing data collection method that is suitable to the realities of recreational fishing in Hawaii.	Funded 2011	

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	Implement pilot study to test the feasibility of logbook reporting in Gulf of Mexico	Pilot study to test the feasibility of logbook reporting in the Gulf of Mexico.	Ongoing	
Develop Survey Methods for Rare-Event or Pulse Fisheries	Massachusetts Recreational Bluefin Tuna Landings Census Pilot - Phase I: Design and Testing	Design and test a census-based data collection program with independent validation for the Massachusetts recreational bluefin tuna fishery, which has increased markedly in recent years.	Funded 2011	
	Non-response Bias Study for the Large Pelagic Telephone Survey	Assess the magnitude of potential nonresponse error in the Large Pelagic Telephone Survey by conducting a nonresponse follow-up study and exploring estimation designs that incorporate nonresponse cell weighting adjustments.	Funded 2011	
	Evaluation of the Sampling Distribution of Tournament Versus Non-Tournament Trips in the Large Pelagic Survey	Evaluation of sampling distribution of HMS tournaments in the Large Pelagic Intercept Survey.	Complete	A report which evaluated the sampling distribution of tournament trips in the NOAA Fisheries Large Pelagic Survey (LPS) and pilot tested alternative data collection methods for HMS tournaments. Based on the results of this pilot study, four alternative approaches for future sampling of HMS tournaments were identified: 1) Status quo, 2) Full tournament census, 3) Modified survey design, and 4) Hybrid design using census for effort and survey for catch rates.

OT Priority	Project	Description	Status	Outcome
	Pilot Study to Characterize Recreational HMS Fisheries in the South Atlantic and Gulf of Mexico	Quantify magnitude and characteristics of HMS fishing trips in the South Atlantic and Gulf of Mexico.	Complete	Report characterizing the HMS fisheries in the Gulf of Mexico and South Atlantic as an initial step towards evaluating the need for alternative data collection methods to improve on the accuracy and precision of HMS data in these sub-regions. The report found that release estimates could likely be achieved either through an MRIP redesign of MRFSS that accommodates "rare event" HMS, or implementation of a new data collection approach focused specifically on offshore fishing for large pelagic in the Gulf and South Atlantic. The report recommends that future surveys should address under-coverage, and should explore the feasibility of implementing either HMS catch card or landings tag programs throughout the South Atlantic and Gulf to improve landings estimates of billfish and swordfish.
	PR Non-Tournament HMS Landings Reporting for Private Boats - Phase I: Fishery Characterization and Outreach	Characterization of HMS fishing in Puerto Rico.	Complete	Report on non-tournament HMS landings reporting for private boats in Puerto Rico. The report found that compliance of Atlantic billfish landings was low, and therefore landing and release estimates were imprecise. After a telephone survey of permit holders, the project recommends that NOAA Fisheries should consider piloting a HMS catch card program in Puerto Rico, as well as investigate ways to improve accuracy and completeness of contact information provided by anglers when they apply for HMS permits.
	Phase 2 Puerto Rico HMS	Development of a specialized data collection program for HMS in Puerto Rico.	Funded 2010	

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	FL Highly Migratory Species Private Angler Telephone Survey Pilot Study	Describe and assess the impact of recreational, private boat fishing for HMS in Florida.	Complete	Report on study that was conducted to guide the development and implementation of future data collection programs to more effectively monitor HMS recreational fisheries throughout the South Atlantic and Gulf of Mexico. The study found that modifications to the MRFSS should potentially include grater spatial stratification, a specialized HMS survey, and a further look into private access vs. public access trips.
	HMS North Pacific Albacore Project	Design a data collection pilot program that would employ onboard observers, enhanced dockside sampling, or a combination of both to determine what long-term modifications to current sampling programs would be necessary to produce more reliable estimates of catch and effort from the fleet.	Complete	Report describing existing data sources in the albacore for-hire sector, including the Washington, Oregon and California State programs, and identifies data needs to develop a CPUE index of abundance. Results of the project indicate that expansion of data collection programs is needed to meet identified needs.
	HMS Shark Survey Design Project	Develop an adaptive sampling methodology for estimating HMS shark catch on the Pacific Coast.	Ongoing	
	FL Highly Migratory Species For-Hire Survey Pilot Study	Describe and assess the impact of for-hire fishing for HMS in FL.	Complete	The report recommends unique methods for for-hire HMS data collection, modifications to access-point intercept surveys, offsite collection of catch data for some species through the existing for-hire telephone survey, and census data collection for some species. Recommendations could be used to develop follow-up MRIP projects testing new methods.

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Other	Volunteer Angler Surveys - Possession (i.e., bag) and Size Limit Analyses and Other Extensions	Conduct a workshop to assess the utility of voluntary angler reporting programs, as well as integrate, improve, and/or redesign existing volunteer angler surveys so that the data can be consistently collected and more effectively used to support management.	Funded 2011	