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Report to Congressional Requesters

December 2015

RECREATIONAL FISHERIES MANAGEMENT

The National Marine Fisheries Service Should Develop a Comprehensive Strategy to Guide Its Data Collection Efforts

Accessible Version

GAO-16-131

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The National Marine Fisheries Service Should Develop a Comprehensive Strategy to Guide Its Data Collection Efforts

GAO Highlights

Highlights of GAO-16-131, a report to congressional requesters

Why GAO Did This Study

Almost 11 million anglers made nearly 71 million marine recreational fishing trips in the continental United States in 2013. Pressure on many fish stocks from fishing has increased demand for quality and timely data that can be used to assess the status of various fish stocks as part of managing marine recreational fisheries. The many modes of marine recreational fishing—in which anglers fish from private boats or boats with guides, the shoreline, private property, and public docks—make collecting the data needed to effectively manage recreational fisheries both complex and challenging.

GAO was asked to review NMFS' marine recreational fisheries data collection program. This report examines (1) challenges that have been identified with the agency's data collection efforts for managing marine recreational fisheries and (2) steps the agency has taken to improve data collection and challenges that remain. GAO reviewed laws, policies, and guidance related to federal and state recreational fisheries data collection methods; reviewed NMFS and other documents on recreational fisheries data collection; and interviewed a nongeneralizable sample of federal and state recreational fisheries officials and other stakeholders, selected to provide geographic representation, among other things, to obtain their views on NMFS' data collection efforts.

What GAO Recommends

GAO recommends that NMFS develop a comprehensive strategy to guide its data collection efforts. The agency agreed with GAO's recommendation.

View GAO-16-131. For more information, contact Anne-Marie Fennell at (202) 512-3841 or fennella@gao.gov.

What GAO Found

The National Marine Fisheries Service (NMFS) within the Department of Commerce faces several challenges related to fisheries data collection, according to reports GAO reviewed and NMFS officials and stakeholders GAO interviewed. These challenges include collecting quality recreational fishing data that are timely for managing marine recreational fisheries and communicating with stakeholders. Regarding the collection of quality data, for example, NMFS faces a challenge identifying the universe of anglers from which to collect information about their marine recreational fishing activity. NMFS relies in part on state registries to identify anglers, but some states exempt certain anglers from registering, and therefore NMFS does not have a complete list of recreational anglers. NMFS officials and other stakeholders have also identified challenges in communicating with stakeholders in collecting recreational fisheries data. For example, several stakeholders told GAO that NMFS has not always communicated with the public about its activities, creating concerns about a lack of transparency regarding NMFS' fisheries management decisions. Reflecting this challenge, in 2014, Louisiana withdrew from the federal fisheries data collection program and implemented its own program because of concerns about federal recreational fisheries data, according to a Louisiana fisheries official.

NMFS has taken several steps aimed at improving data collection to manage marine recreational fisheries and addressing challenges related to communicating with stakeholders. For example, to help improve the quality of the state data it relies on to identify the universe of anglers, NMFS made recommendations to states on improving their recreational angler databases and provided funds to the states to support data quality improvement projects, according to NMFS documents. NMFS has also taken steps to improve communication, including working with Louisiana to perform a side-by-side comparison of federal data with Louisiana's data to determine whether Louisiana's data can be used as an alternative to federal data. However, some challenges persist, including challenges in validating data the NMFS collects and communicating about upcoming NMFS initiatives. More broadly, the agency does not have a comprehensive strategy to guide its efforts to improve recreational fisheries data collection. Such a strategy is consistent with the framework of leading practices in federal strategic planning, as described in the Government Performance and Results Act Modernization Act of 2010, Office of Management and Budget guidance, and practices GAO has identified. Based on GAO's discussions with NMFS officials and review of NMFS documents, the agency has not developed a comprehensive strategy because it has been focused on other priorities such as improving its data collection methods. NMFS officials told GAO that NMFS recognizes the need to enhance its strategic planning but did not provide information about how, or whether, they plan to develop a comprehensive strategy. Without a comprehensive strategy that articulates NMFS' goals to improve data collection and methods for measuring progress toward the goals, NMFS may have difficulty ensuring that the various steps it is taking to improve data collection are prioritized so that the most important steps are undertaken first, and it may find it difficult to determine the extent to which these steps will help it address the challenges it faces.

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Abbreviations

MRIP	Marine Recreational Information Program
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

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Congressional Requesters

Saltwater recreational fishing in the United States makes significant contributions to local and regional economies and is an important social activity for individuals, families, and communities. Almost 11 million anglers made nearly 71 million marine recreational fishing trips in the continental United States in 2013, according to National Marine Fisheries Service (NMFS) statistics. NMFS, within the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), acts as a steward of living marine resources through science-based conservation and management. Much of this work occurs under the Magnuson-Stevens Fishery Conservation and Management Act, which sets forth standards for the conservation and management of fisheries resources.[1] NMFS collaborates with stakeholders, such as states and interstate marine fisheries commissions, primarily through its Marine Recreational Information Program (MRIP) to collect and analyze marine recreational fisheries data. Several states, such as Louisiana and Texas, also manage their own marine recreational fisheries data collection programs. In addition, NMFS and its partners collect other types of data, such as information on commercial fishing activity and data on the total size of fish stock populations.[2] The various data that are collected and analyzed are used to estimate fishing activity, understand fish biology, and determine fish stock abundance. This information is used to support the development of annual catch limits and other accountability measures to prevent overfishing and support rebuilding plans for overfished stocks in federal waters.

Pressure on many fish stocks from fishing has increased the demand for high-quality and timely data that can be used to assess the status of various fish stocks as part of managing marine recreational fisheries.

[1]Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1851(a)(1)-(10).

[2]A "fish stock" refers to either one species or a complex of comparable species managed as an entity in a geographic area. Throughout this report, the term fish stock is used to mean one fish species or a fish stock complex.

However, in contrast to commercial fisheries, which have standard mechanisms for data collection, the many modes of marine recreational fishing—in which anglers fish from private boats or boats with guides, from the shoreline, from private property, and from public docks—make collecting the data needed to effectively manage recreational fisheries complex and challenging. Designing marine recreational fishing surveys that provide high-quality and timely data at an acceptable cost was identified as one of several challenges facing NMFS by a 2006 National Research Council report on NMFS' marine recreational fisheries data collection methods.[3]

You asked us to examine NMFS' marine recreational fisheries data collection program. This report examines (1) the challenges that have been identified with NMFS' data collection efforts for managing marine recreational fisheries and (2) the steps NMFS has taken to improve data collection and challenges that remain.

To conduct our work, we reviewed and analyzed relevant laws, agency policies, guidance, and other documentation related to fisheries data collection, including specific federal and state marine recreational fisheries data collection projects. To determine the challenges that have been identified with NMFS' data collection efforts, we first reviewed reports and evaluations of NMFS' data collection programs since 2006, including reports from the National Research Council and NMFS, among others. We also interviewed officials from NMFS headquarters and NMFS' Northeast, Northwest, and Southeast regional Fisheries Science Centers; representatives of the Gulf of Mexico, Pacific, and South Atlantic Fishery Management Councils; officials from the Atlantic, Gulf, and Pacific States Marine Fisheries Commissions; and officials from state fisheries agencies in Alabama, Florida, Louisiana, Mississippi, North Carolina, Rhode Island, Texas, and Washington. We selected federal and state agencies and regional organizations to interview based on such factors as geographic representation, locations of large volumes of recreational fishing, and representation from key data collection and management stakeholders. In addition, we interviewed selected marine recreational fisheries stakeholders, such as recreational anglers, to gather information on recreational fisheries data collection methods,

[3]National Research Council, Ocean Studies Board, Committee on the Review of Recreational Fisheries Survey Methods, *Review of Recreational Fisheries Survey Methods* (Washington, D.C.: 2006).

associated challenges, and steps taken to address those challenges. These stakeholders represented various geographic locations and different recreational fishing sectors. We determined that the selection of these entities and individuals was appropriate for our design and objectives, and that the selection would generate valid and reliable evidence to support our work. The results of our interviews cannot be generalized to all stakeholders or data collection activities, but they provide examples of different recreational fisheries data collection efforts and challenges. Because the NMFS statistical surveys cover a wide range of methods, apply to a wide diversity of locations, and often entail in-depth technical knowledge about fisheries data collection, we did not conduct a technical evaluation of these challenges or assess their technical validity.

To determine the steps NMFS has taken to improve data collection and challenges that remain, we conducted interviews as described above and reviewed NMFS reports and other documents. Specifically, we reviewed NMFS' strategic plans, recreational fisheries planning documents, and recreational fisheries data collection program documents. We compared this information with the framework of leading practices in federal strategic planning contained in the Government Performance and Results Act of 1993, the Government Performance and Results Act Modernization Act of 2010, and Office of Management and Budget guidance. We also compared this information to key practices related to communication we identified in previous reports.[4] Consistent with our approach to the previous objective, we did not conduct a technical evaluation of NMFS' steps to improve data collection or assess the appropriateness of those steps in light of the challenges NMFS faces. Appendix I contains a more detailed description of our objectives, scope, and methodology.

We conducted this performance audit from July 2014 to December 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that

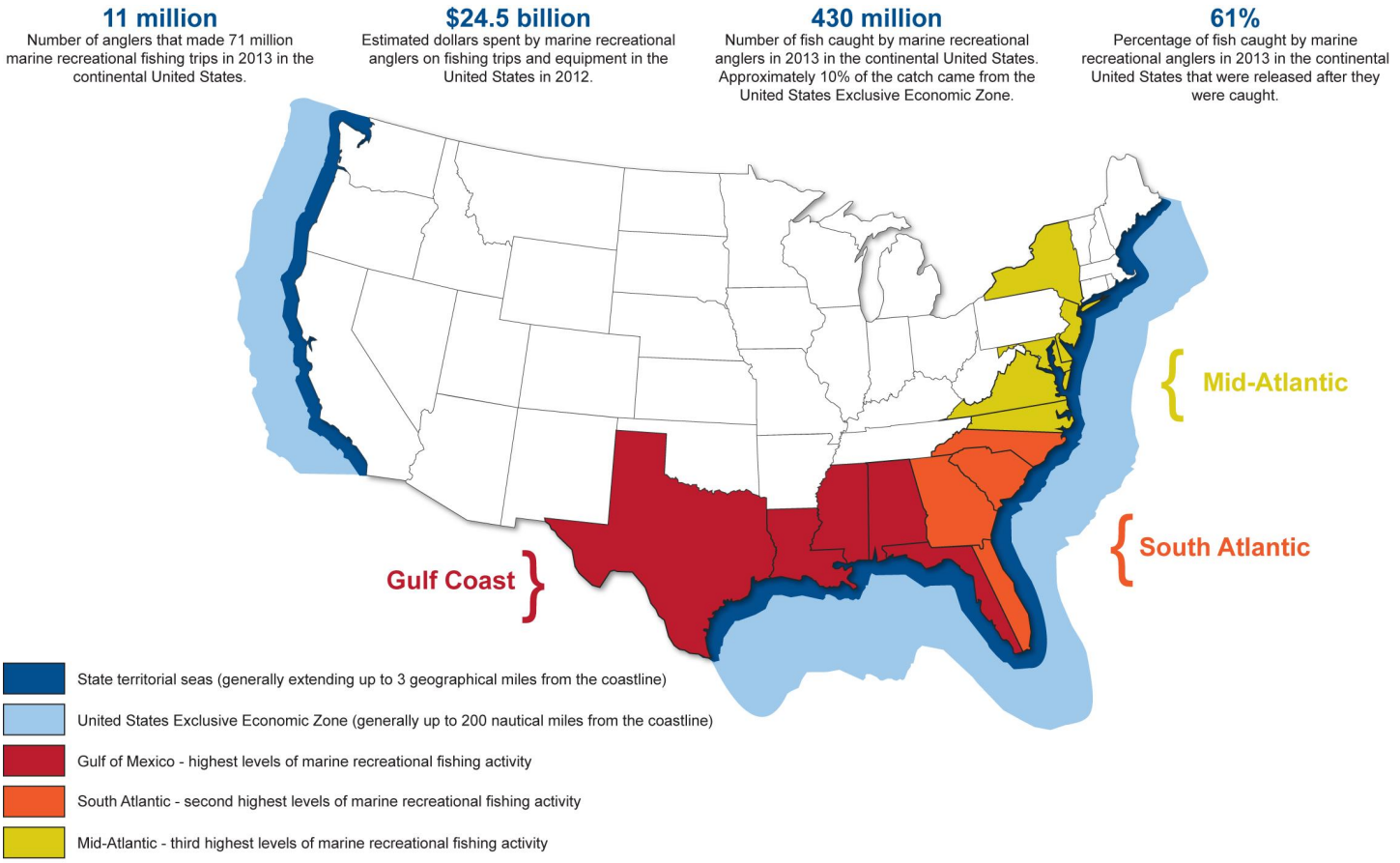
[4]See GAO, *Foreign Aid Reform: Comprehensive Strategy, Interagency Coordination, and Operational Improvements Would Bolster Current Efforts*, GAO-09-192 (Washington, D.C.: Apr. 17, 2009) and *Results-Oriented Cultures: Implementation Steps to Assist Mergers and Organizational Transformations,* GAO-03-669 (Washington, D.C.: July 2, 2003).

the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

NMFS' mission is to act as a steward of the nation's ocean resources and their habitats. This includes responsibility for managing recreational fisheries in federal waters. These waters generally include the United States Exclusive Economic Zone, which typically begins approximately 3 geographical miles from land and extends 200 nautical miles from land. Coastal states generally maintain responsibility for managing fisheries in waters that extend approximately 3 geographical miles from their coastlines. The extent of recreational fishing varies by region, with the greatest amount of marine recreational fishing taking place in the Gulf of Mexico, followed by the South Atlantic and Mid-Atlantic, according to NMFS statistics. Figure 1 shows NMFS statistics about the extent of marine recreational fishing activity overall and the locations of the highest levels of marine recreational fishing activity.

Figure 1: Marine Recreational Fishing Statistics and Locations of Highest Fishing Activity



Note: These statistics are approximate and do not include Alaska.

Sources: National Marine Fisheries Service, Fisheries of the United States (2013); Fisheries Economics of the United States (2012) | GAO-16-131

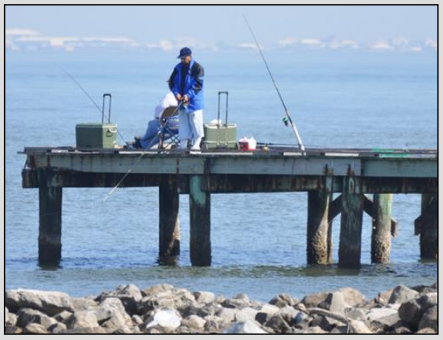
The 1976 Magnuson-Stevens Fishery Conservation and Management Act, as amended, governs marine fisheries management in federal waters, including both commercial and recreational fishing. In the original act of 1976, Congress found that international fishery agreements had not been effective in preventing or terminating overfishing. To manage fisheries and promote conservation, the act created eight Regional Fishery Management Councils, which include representatives from member states and NMFS. The act was amended in 1996 to rebuild

overfished fisheries, protect essential fish habitat, and reduce bycatch,[5] among other things. The 1996 act included requirements for NMFS and the councils to develop fisheries management plans for fish stocks and to establish required time frames for rebuilding fish stocks that are overfished. A reauthorization of the act was passed in 2006 and established further legal requirements to guide fisheries data collection and management, including mandates on the use of science-based annual catch limits. Under NMFS guidelines, plans should include accountability measures to prevent catch from exceeding the annual catch limit. These measures can include fishing season closures, closures of specific areas, changes in bag limits, or other appropriate management controls.

The marine recreational fishing sector is divided between private anglers and the for-hire sector. Private anglers primarily access marine recreational fisheries by using private boats or by fishing from sites on shore. The for-hire sector includes both charter boats and "head boats." Charter boats are chartered or contracted by anglers for a fishing trip for a flat fee regardless of the number of anglers on the boat.[6] "Head boats" are usually large capacity multipassenger vessels that charge each angler a per person fee for a fishing trip.

Recreational Anglers Use Different Modes to Fish

Private boats and shoreside



Source: U.S. Environmental Protection Agency. | GAO-16-131

Private recreational anglers use private boats and sites on shore, such as public docks or private boat clubs, to access marine recreational fisheries.

For-hire fleet

Source: National Oceanic and Atmospheric Administration. | GAO-16-131

Private recreational anglers also rely on the for-hire sector, which consists of charter boats and "head boats." Charter boats commonly carry six or fewer passengers who purchase the services of a boat and crew. "Head boats" carry more than six passengers, with each individual angler paying a fee to go fishing.

[5]According to the act, bycatch means fish that are harvested in a fishery, but are not sold or kept for personal use, and includes economic and regulatory discards. Economic discards are fish that are not kept because the harvester does not want them. Regulatory discards are fish required by regulation to be released after they are caught, or to be kept but not sold. Bycatch does not include fish released alive under a recreational catch and release fishery management program. For the purposes of this report, we refer to bycatch as discards.

[6]In addition to the more common six-passenger charter boats, there are small boats that carry only one or two anglers (sometimes referred to as "guide boats") and very large multipassenger charter boats.

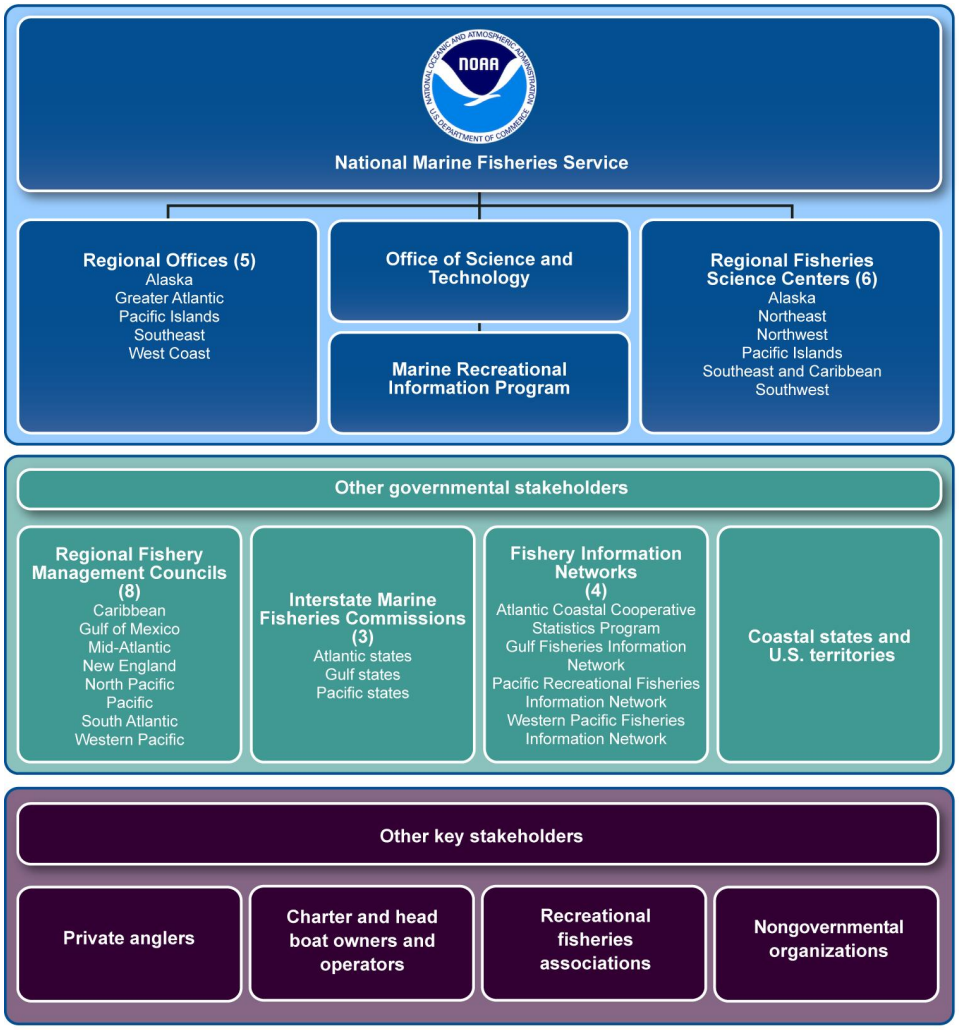
Entities Involved in Recreational Fisheries Data Collection

NMFS has overall responsibility for collecting data to manage federal fisheries. It has several offices involved in fisheries data collection and management, including the Office of Science and Technology, six regional Fisheries Science Centers, and five regional offices. NMFS has numerous partners for collecting data to manage recreational fisheries, including coastal states and three interstate marine fisheries commissions.[7] In addition, NMFS and these partners collaborate with regional fisheries information networks, such as the Gulf Fisheries Information Network and the Atlantic Coastal Cooperative Statistics Program, to collect and manage fisheries data.[8] NMFS also collaborates with eight Regional Fishery Management Councils that are responsible for fisheries conservation and management in specific geographic regions of the country. In addition, NMFS collaborates with numerous other stakeholders, such as private anglers, charter boat operators, seafood dealers, nongovernmental organizations, and recreational fisheries associations, to gather input about fisheries data collection programs and management. Figure 2 shows key stakeholders involved in recreational fisheries data collection.

[7]In the 1940s, the federal government authorized by statute three interstate compacts, each creating a regional marine fisheries commission to better utilize and protect fisheries within the consenting states' jurisdiction. The three separate commissions represent the Atlantic, Gulf, and Pacific states, respectively. The commissions were originally authorized only to make fisheries management recommendations to state officials and to recommend coordination among state management efforts. In 1984, the migratory Atlantic striped bass crisis prompted legislation that gave the Atlantic States Marine Fisheries Commission some independent regulatory authority over that species. This authority was broadened in 1993 to encompass other migratory species.

[8]The regional fisheries information networks are state-federal cooperative programs in which NMFS participates as a partner with the state fisheries agencies, interstate marine fisheries commissions, regional fishery management councils, and other federal agencies, such as the U.S. Fish and Wildlife Service. These partnerships engage in cooperative programs to collect, aggregate, and manage state and federal fisheries data to support fishery managers and associated agencies. The regional networks also serve as liaisons for identifying state and regional data needs.

Figure 2: Key Stakeholders in Marine Recreational Fisheries Data Collection and Management



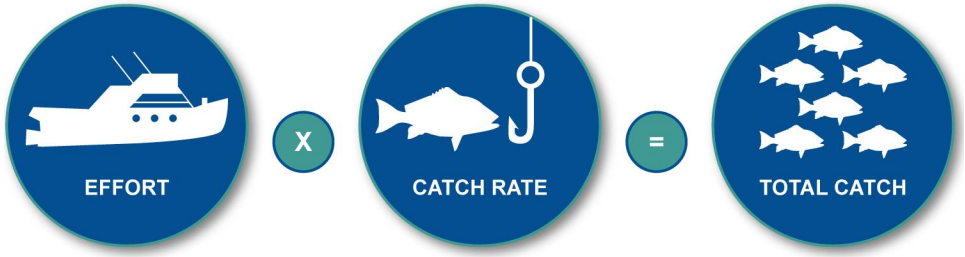
Source: GAO. | GAO-16-131

Collection and Use of Recreational Fisheries Data

NMFS and its stakeholders collect several types of data for use in recreational fisheries management. For example, information is collected on recreational fishing effort and catch rates. Effort measures the number of angler trips, while catch rates measure the average number and size of fish, by species, that are brought to shore, caught and used as bait, or discarded (i.e., caught but then released alive or dead). These data are used to estimate the total recreational fishing catch to determine the

impact of recreational fishing activity on fish stock mortality and the changes that are occurring to the fish stock over time. Figure 3 shows how these data are used to estimate total catch.[9]

Figure 3: Estimating Total Marine Recreational Fisheries Catch



Note: According to NMFS officials, it is likely that some fish that are caught and released alive will survive, but the proportion of caught fish that survive will vary among species, which affects the total catch.

Source: National Marine Fisheries Service. | GAO-16-131

According to NMFS documentation, data on catch and discards are generally collected through shoreside interviews of anglers at public access fishing sites, primarily through NMFS' MRIP Access Point Angler Intercept Survey, which covers the Atlantic and Gulf coasts from Louisiana to Maine, or through state survey programs. These data may also be collected through the use of onboard observers, typically on charter boats or head boats. Data on fishing effort are collected through MRIP or state programs, using methods such as phone or mail surveys, shoreside interviews, onboard observers, logbooks, boat and boat trailer counts, and electronic monitoring or electronic reporting tools. Given the involvement of the interstate fisheries commissions and states in data collection efforts, methods for collecting data on recreational fishing vary among states and regions.

In addition, according to NMFS documentation, biological samples of fish specimens are collected for scientific analysis to provide information on the health and biology of fish stocks. For example, data are collected on the lengths, weights, and ages of fish samples. These samples are often

[9]NMFS also calculates the catch per unit of effort to provide an index of the relative abundance of fish stocks over time in certain locations.

collected during NMFS' shoreside interviews of recreational anglers or by tagging fish to track after they are caught and released. Academic programs and cooperative research with the fishing industry are other sources of biological sampling data.

In addition to collecting data on marine recreational fisheries, NMFS and its stakeholders, such as states, collect other types of data including data on commercial fisheries. Unlike recreational fisheries data, however, commercial fisheries data are collected through a census of the weight and value of all fish species sold to seafood dealers using a network of cooperative agreements with states. According to NMFS documentation, in some regions, state fishery agencies are the primary collectors of commercial fisheries data that they receive from seafood dealers who submit periodic reports on the amount and value of the various fish species they purchase. In addition, independently from recreational or commercial fishing data collection efforts, NMFS and its stakeholders also collect information on the abundance of fish stocks and environmental conditions in fish habitats, such as seafloors, open ocean water, and natural and artificial reefs. These data are used to determine the size, age composition, and distribution of fish stocks, and allow NMFS to track the total abundance of fish stocks over time. NMFS officials told us NMFS relies on its own research vessels or contracted commercial fishing vessels to collect abundance data.

NMFS uses these various types of data to conduct fish stock assessments that estimate, among other things, the population of fish stocks, fish stock productivity, and biological reference points for sustainable fisheries. NMFS and the Regional Fishery Management Councils in turn use the fish stock assessments to examine the effects of fishing activities on the fish stocks and make determinations such as whether stocks are overfished and whether overfishing is occurring.[10] According to NMFS documentation, the data are also used to support management decisions, such as setting limits on how many fish can be caught annually or determining the need to close a recreational fishery for a particular fish stock during an open fishing season, called an in-season closure, when annual catch limits are anticipated to be exceeded.

[10]We previously reported on NMFS' fish stock assessments; see, for example, GAO, *Fish Stock Assessments: Prioritization and Funding*, GAO-14-794R (Washington, D.C.: Sept. 19, 2014).

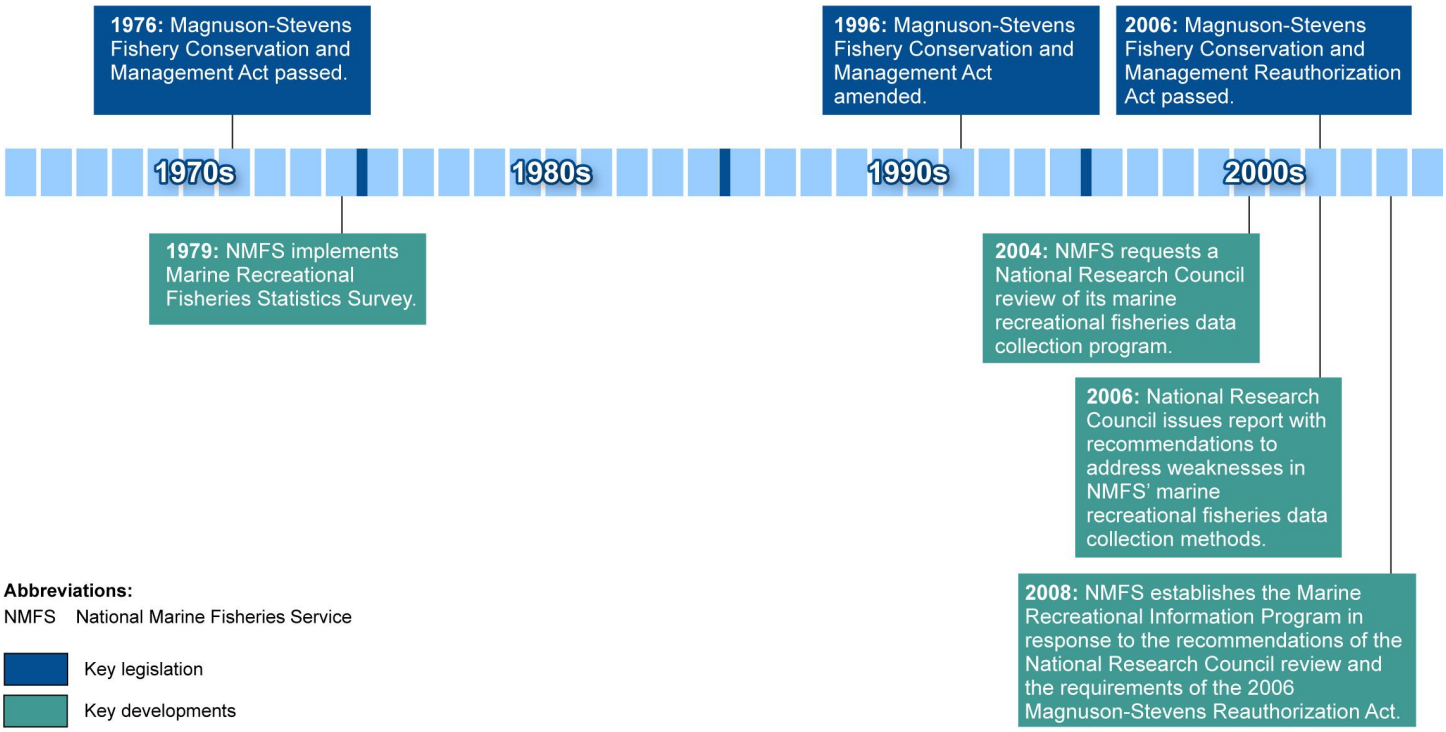
National Research Council Findings and NMFS' Implementation of MRIP

In 2006, the National Research Council issued a report that reviewed NMFS' marine recreational fisheries data collection programs and made numerous general and specific recommendations to address weaknesses. Among other things, the council recommended the redesign of all marine recreational fishing surveys funded by NMFS.[11] In addition, the council recommended that NMFS improve its survey coverage by either developing a national registration of all saltwater anglers or by using new or existing state saltwater license programs that would provide appropriate contact information for all anglers fishing in all marine waters, both state and federal. The 2007 reauthorization of the Magnuson-Stevens Act included requirements for NMFS to take into consideration and, to the extent feasible, implement the recommendations in the National Research Council report.

Subsequently, in October 2008, NMFS began implementing MRIP, managed in NMFS' Office of Science and Technology, to collect recreational fisheries effort and catch data and develop estimates for use in fisheries management. MRIP was intended to coordinate collaborative efforts among NMFS and its various stakeholders to develop and implement an improved recreational fisheries statistics program. MRIP consists of a system of regional surveys that provide effort and catch statistics for use in the assessment and management of federal recreational fisheries. According to NMFS officials, because counting every recreational angler or observing every fishing trip is not possible, NMFS relies upon statistical sampling to estimate the number of fishing trips recreational anglers take and what they catch. The data gathered from the regional surveys are compiled to provide regional and national estimates. Under MRIP, certain states, including California, Oregon, and Washington, have implemented recreational fisheries data collection programs funded, in part, by NMFS; these data are also used to inform fisheries management. Also, some states have developed and implemented other recreational fisheries data collection programs funded, in part, through mechanisms such as fee-based fishery programs in those states. Figure 4 provides a timeline of key legislative and other events related to marine recreational fisheries data collection and management.

[11]This included surveys under NMFS' Marine Recreational Fisheries Statistics Survey, which was established in 1979 to provide data for estimating the impact of recreational fishing.

Figure 4: Timeline of Key Events in Marine Recreational Fisheries Data Collection and Management



Source: GAO. | GAO-16-131

Several Challenges with NMFS' Fisheries Data Collection Efforts Have Been Identified

Since the 2006 National Research Council report, NMFS and some state officials have identified several challenges related to collecting data to manage marine recreational fisheries, such as obtaining quality recreational fishing data to inform scientific analyses and produce credible effort and catch estimates. NMFS and some state officials also identified challenges with collecting recreational fisheries data in a timely manner to support certain recreational fisheries management decisions. In addition, NMFS and some state officials, as well as some other stakeholders such as private recreational anglers, identified challenges regarding how NMFS communicates with stakeholders about its marine recreational fisheries data collection efforts.

Examples of NMFS' challenges in obtaining quality recreational fishing data through MRIP to inform scientific analyses and produce credible effort and catch estimates include:

- **Identifying the universe of recreational anglers.** NMFS faces a challenge in obtaining complete information on the universe of recreational anglers. According to NMFS officials, MRIP created a national saltwater angler registry to obtain more complete information about recreational anglers. However, this registry does not include anglers if they are registered in states bordering the Atlantic Ocean and Gulf of Mexico because NMFS granted those states exemptions from the national registry.[12] According to NMFS officials, NMFS relies on state angler registries to identify the universe of recreational anglers in those exempted states. However, some state angler registries offer exemptions from fishing permit requirements, such as for individuals under or over certain ages, and NMFS officials noted that not all anglers comply with state licensing and registration requirements. Therefore, these anglers do not appear on state angler registries. As a result, NMFS does not have a complete list of recreational anglers.
- **Obtaining sufficient coverage in effort surveys.** According to some state officials, NMFS faces challenges in ensuring that it covers the full range of anglers among the participants it selects to participate in fishing effort surveys so that they are representative of the overall angler population. For example, NMFS has relied on its Coastal Household Telephone Survey, which randomly selects participants from all potential household telephone numbers in coastal counties, to obtain information about shoreside and private boat fishing effort in the Gulf of Mexico and the Atlantic coast. As a result, the survey does not capture recreational anglers from noncoastal states that travel to fish in the Gulf of Mexico or Atlantic coast, or coastal resident anglers in households that do not have a landline phone. NMFS officials acknowledged this limitation with the Coastal Household Telephone Survey.
- **Targeting a representative sample in shoreside surveys.** According to NMFS officials, NMFS faces challenges in collecting data on a portion of the recreational fishing sector since it generally does not collect data on private property or at private-access fishing sites. According to NMFS officials and other governmental

[12]Section 401(g) of the Magnuson-Stevens Fishery Conservation and Management Act requires NMFS to establish a registry program for recreational fishermen. The law exempts licensed anglers in states that provide data suitable for NMFS' use. Under Memoranda of Understanding with NMFS, each of the Atlantic and Gulf Coast states are providing lists of anglers to NMFS from their saltwater fishing license databases, while Pacific Coast states and island territories are providing survey data to NMFS.

stakeholders, this is an issue in states that have many private-access sites, such as California and Florida, because there may be a significant portion of the recreational fishing sector that is not being surveyed. As a result of this limitation, according to NMFS officials and some state officials, NMFS relies on untested assumptions about, for example, catch and discard rates for anglers that use private-access fishing sites to develop recreational catch estimates. However, NMFS officials noted that survey data on fishing effort are collected from anglers regardless of whether they fish from public or private-access fishing sites. In addition, according to one state official, NMFS' standard protocols for determining when and where to assign shoreside observers to conduct interviews may not take into account local fishing patterns and, therefore, observers may not be located in the right places at the right times to collect the most representative data. For example, according to this official, NMFS' protocols for assigning shoreside observers do not account for the length of time anglers would typically take to reach federal waters and return from their trip. As a result, observers may not be at the shoreside when anglers return.

- **Obtaining a sufficient number of survey responses and biological samples.** According to NMFS and some state officials, NMFS faces the challenge of collecting a sufficient number of survey responses and samples in its effort and catch surveys. For example, some NMFS and state officials told us Coastal Household Telephone Survey response rates have been declining, and a 2014 report prepared for NMFS noted that response rates to the survey had "declined considerably" in the previous decade, which could increase the potential for bias in the data collected on recreational angler fishing effort.[13] Also, one state official told us he does not believe NMFS assigns enough shoreside observers to collect the recreational angler catch and discard data needed to develop precise recreational catch estimates. In addition, another state official told us that the lack of shoreside observers has contributed to an insufficient amount of biological samples collected to adequately address scientific needs. Consistent with these views, in 2013 NMFS' Southeast Fisheries Science Center identified a need for more fish tissue samples in its region to aid in assessing fish stock reproduction.

[13]National Marine Fisheries Service, *Development and Testing of Recreational Fishing Effort Surveys: Testing a Mail Survey Design, Final Report*, July 31, 2014. The report did not cite specific response rates.

- **Obtaining valid survey responses.** According to some state and NMFS officials, obtaining valid survey responses can be challenging because they depend on anglers' recollections of prior fishing events. NMFS officials told us that the accuracy of self-reported data (i.e., data that rely on participants providing responses based on personal observations) depends on the angler's ability to recall events or to distinguish between different fish species. However, anglers may not be able to accurately recall details about fish they caught and then discarded, especially as time elapses or because of limited knowledge about fish species, and without independent validation or verification, that data may be inaccurate. According to NMFS officials, these challenges affect the Coastal Household Telephone Survey because the survey asks anglers how many saltwater fishing trips were taken in the previous 2 months, but it does not use observers or other mechanisms to independently validate and verify this self-reported data.
- **Obtaining key recreational fisheries data.** According to NMFS and some state officials, NMFS faces a challenge in collecting complete data on discards—that is, fish that are caught but then released—because of the difficulty of validating and verifying self-reported data as previously discussed. In light of this difficulty, Louisiana does not collect recreational angler discard data as part of its own recreational fisheries data collection program because of concerns about the quality of angler self-reported data, according to a state official. Even given the uncertainty in identifying the exact amount of discards, the number of discards can be substantial—for example, according to NMFS statistics, the majority of fish caught by marine recreational fishermen in 2013 were discarded. NMFS officials told us that discarded fish that have to return to great depths often experience high mortality rates due to barotrauma.[14] As a result of limited information about the number of discarded fish and their mortality rates, according to NMFS officials, NMFS relies on assumptions about the mortality rates of discarded fish to produce or adjust recreational catch estimates.

NMFS also faces challenges in collecting timely marine recreational fishing data to support certain fisheries management decisions, according

[14]According to NMFS documentation, barotrauma is a condition experienced by some deepwater fish that are brought quickly to the surface. Fish experiencing barotrauma often sustain serious injuries and, upon release, are unable to swim or dive back to deep water. Therefore, the survival rates of caught and released deepwater fish are generally low.

to NMFS and some state officials we interviewed. According to NMFS officials, the Magnuson-Stevens Reauthorization Act of 2006 implemented new requirements that have greatly expanded the pressures on fisheries managers to rely on timely data to make decisions.[15] However, according to NMFS and some state officials, NMFS' data collection systems have not evolved quickly enough to support management decision making. For example, it takes 2 months to conduct the Coastal Household Telephone Survey, which collects data on recreational fishing effort in the Gulf of Mexico and the Atlantic coast, and about 45 days to analyze the data and produce recreational fishing estimates. According to NMFS and some state officials, as a result of these timing issues, NMFS managers do not have enough information to make informed decisions about whether to initiate in-season closures for certain fish stocks with annual catch limits in order to prevent anglers from exceeding those limits. State officials frequently highlighted this as a concern in managing the Gulf of Mexico red snapper, which is susceptible to in-season closures because of concerns about overfishing. According to NMFS documentation, this fishery has been subject to shortened federal fishing seasons over the last few years—including seasons of 9 days in 2014 and 10 days in 2015, compared with 75 days in 2009 and 42 days in 2013.

NMFS, some state officials, and some other stakeholders, such as private recreational anglers, have also identified challenges in how NMFS communicates with stakeholders about its fisheries data collection efforts. For example, a fisheries official from Texas said that, although Texas provides NMFS with marine recreational fisheries data, NMFS does not clearly communicate how or if it uses those data. Some private recreational anglers also told us that NMFS has not always sufficiently communicated with the public about its activities, creating concerns about a lack of transparency regarding NMFS' fisheries management decisions. For example, some private anglers told us they are confused because NMFS has not explained why it continues to shorten the Gulf of Mexico red snapper fishing season even though the red snapper population has increased. NMFS officials acknowledged that NMFS has not always clearly communicated with regional stakeholders to explain its decision-

[15]The act requires NMFS to report annually to Congress and the Regional Fishery Management Councils on the status of fisheries within each council's geographical area of authority and identify those fisheries that are overfished or are approaching a condition of being overfished.

making processes, stating that this has contributed to the public's misperceptions.

As a result of the challenges that have been identified with collecting fisheries data, NMFS officials told us they face a lack of public confidence and trust in their ability to provide the data needed for managing recreational fisheries. For example, according to a Texas fisheries official, Texas withdrew from NMFS' recreational data collection program and implemented its own data collection program in the late 1970s because it did not believe that NMFS' data collection methods suited Texas' needs for managing recreational fisheries. Similarly, in 2014, Louisiana withdrew from MRIP and implemented its own recreational fisheries data collection program, called LA Creel, because of concerns about MRIP data being able to support Louisiana's needs for managing recreational fisheries, according to a Louisiana fisheries official. Similarly, according to state officials, Mississippi and Alabama have also independently initiated efforts to collect data on the abundance of certain fish, including red snapper, in artificial reefs off the coasts of these states because of concerns that NMFS' current data collection methods underestimate the abundance of these fish stocks. Citing dissatisfaction with NMFS' management of the Gulf of Mexico red snapper fishery, the states bordering the Gulf of Mexico released a proposal in March 2015 to transfer the responsibility for managing Gulf of Mexico red snapper from NMFS to these states.[16]

[16]The proposal was signed by officials from Alabama, Florida, Louisiana, Mississippi, and Texas. Two bills (S. 105 and H. R. 3094) pending in Congress would amend the Magnuson-Stevens Fishery Conservation and Management Act to transfer to the Gulf Coast states, under certain conditions, the authority to manage red snapper fisheries in the Gulf of Mexico.

NMFS Has Taken Steps Aimed at Improving Data Collection, but Some Challenges Persist and NMFS Does Not Have a Comprehensive Strategy to Guide Improvement Efforts

NMFS has taken several steps aimed at improving data collection to manage marine recreational fisheries and addressing challenges related to communicating with stakeholders. However, some data collection challenges persist, and NMFS does not have a comprehensive strategy to guide its efforts to improve recreational fisheries data collection.

NMFS Has Taken Steps Aimed at Improving Recreational Fisheries Data Collection, but Some Challenges Persist

NMFS has taken steps to address some of the challenges it faces in collecting data for managing marine recreational fisheries, including steps aimed at collecting quality data to support scientific analyses and producing credible effort and catch estimates, improving the timeliness of data collection, and improving communication with stakeholders. However, even with the various steps NMFS has taken, agency officials said that some challenges persist. In April 2015, NMFS requested that the National Research Council review MRIP to determine the extent to which NMFS has addressed the recommendations in the 2006 National Research Council report. A NMFS official told us the National Research Council has initiated the review process, and NMFS expects the review to be completed in 2017.

Addressing Challenges in Collecting Quality Data

NMFS has taken several steps to address the challenges it faces in collecting quality data. To address the challenge of identifying the universe of recreational anglers, NMFS documents indicate that by October 2011 NMFS had entered into memoranda of agreement with states and United States territories that were exempt from the national registry requirements, whereby these states and territories agreed to submit their data on marine recreational fishing participants to NMFS for inclusion into the national registry.[17] In 2011 and 2012, NMFS provided

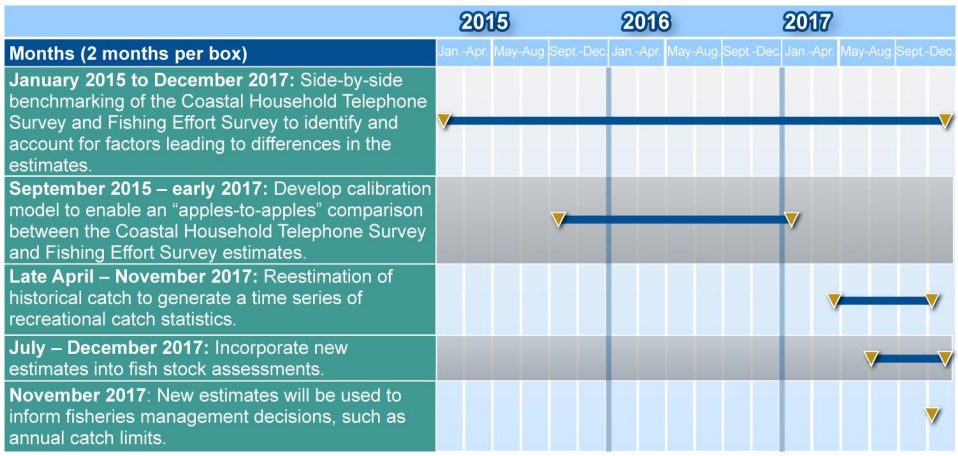
[17]Hawaii, Puerto Rico, and the United States Virgin Islands have not entered into memoranda of agreement.

approximately 20 grants to states through the interstate marine fisheries commissions to support initial data quality improvement projects. Subsequently, in 2012 and 2013, NMFS received state angler registry data from each of the exempted Atlantic and Gulf Coast states and entered the data into the national registry database. During this same period, NMFS made recommendations to the states on improving their recreational angler databases. NMFS also continued to provide funds to the states through the commissions to support the initial data quality improvement projects, according to NMFS documents.

To address both regional and national needs for effort and catch data, NMFS has supported the redesign of state and federally managed surveys in all regions. For example, in 2009, NMFS initiated a series of pilot studies to address declining participation rates in telephone recreational fishing effort surveys and potential gaps in the data that could skew survey results due to limitations in reaching coastal residences. NMFS conducted these pilot studies to determine whether mail survey methods for collecting recreational fishing effort data would improve estimates. In a July 2014 report, NMFS stated that the findings from the study indicated that mail survey response rates were nearly three times higher than the telephone survey response rates.[18] Given these results, in May 2015, NMFS issued a plan for transitioning from the current Coastal Household Telephone Survey to a newly designed mail-based survey, referred to as the Fishing Effort Survey. According to NMFS documentation, NMFS expects the Fishing Effort Survey to be fully implemented by January 2018, as shown in figure 5.

[18]National Marine Fisheries Service, *Development and Testing of Recreational Fishing Effort Surveys: Testing a Mail Survey Design, Final Report*, July 31, 2014.

Figure 5: Timeline of the National Marine Fisheries Service's Planned Transition to Fishing Effort Survey



Note: Effort is the number of angler trips taken, while catch is the number and size of fish, by species, that are brought to shore, caught and used as bait, or discarded (i.e., caught but then released alive or dead).

Source: National Marine Fisheries Service. | GAO-16-131

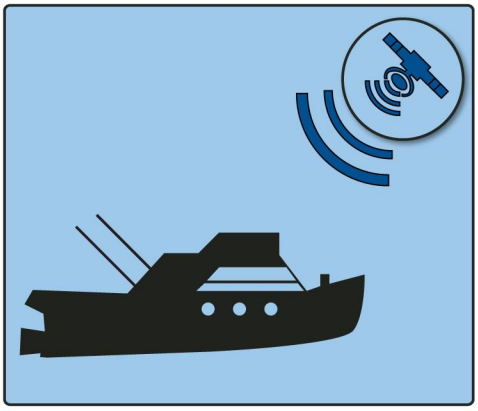
In 2013, NMFS also issued new protocols for the Access Point Angler Intercept Survey. Under these new protocols, NMFS assigns shoreside observers to specific locations at precise times to address potential data gaps related to where and when the data are collected. According to NMFS officials, the new peer-reviewed survey design is intended to provide complete coverage of fishing trips ending at public access sites with representative sampling of trips ending at different times of day.

Also in 2013, NMFS initiated a science program review to help provide a systematic peer review of its fisheries data collection programs at its six regional Fisheries Science Centers and Office of Science and Technology. As part of this effort, peer review panels evaluated NMFS' data collection and management programs in 2013, subsequently issuing a report identifying a number of crosscutting national challenges and making several recommendations to address them. For example, the report recommended that NMFS develop a plan for providing the data necessary for conducting fish stock assessments.

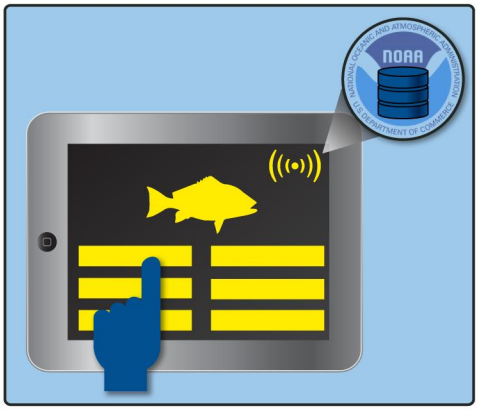
NMFS has also initiated efforts to evaluate the potential of electronic monitoring and reporting to address quality of data challenges. For example, according to NMFS officials, as of October 2015, NMFS was working with stakeholders in Florida to test the use of a smartphone- and

Internet-based electronic reporting tool called iAngler to collect and report data on recreational effort and catch. NMFS is also working with Texas on an electronic reporting tool called iSnapper to test the collection of self-reported catch data, according to NMFS officials. In addition, NMFS issued a policy directive in May 2013 to provide guidance on the adoption of electronic technologies to complement or improve existing fishery data collection programs. In 2013, NMFS began working with its regional Fisheries Science Centers to develop regional plans to identify, evaluate, and prioritize the implementation of electronic monitoring and reporting technologies. According to NMFS documents, each of NMFS' regional offices, in consultation with the Fisheries Science Centers, issued implementation plans in January and February 2015 that include a focus on using electronic technologies to improve the quality of recreational fishing data and data timeliness. Figure 6 shows examples of electronic monitoring and reporting technologies.

Figure 6: Examples of Recreational Fisheries Electronic Monitoring and Reporting Technologies



Electronic monitoring in the for-hire recreational fishing sector includes global positioning system receivers that track vessel locations and pinpoint fishing times to help collect fishing effort data and compliance with fishing restrictions.



Private anglers and for-hire fishing vessels can use electronic logbooks to report effort and catch data, and certain biological data, such as fish length and species.

Note: Effort is the number of angler trips taken, while catch is the number and size of fish, by species, that are brought to shore, caught and used as bait, or discarded (i.e., caught but then released alive or dead).

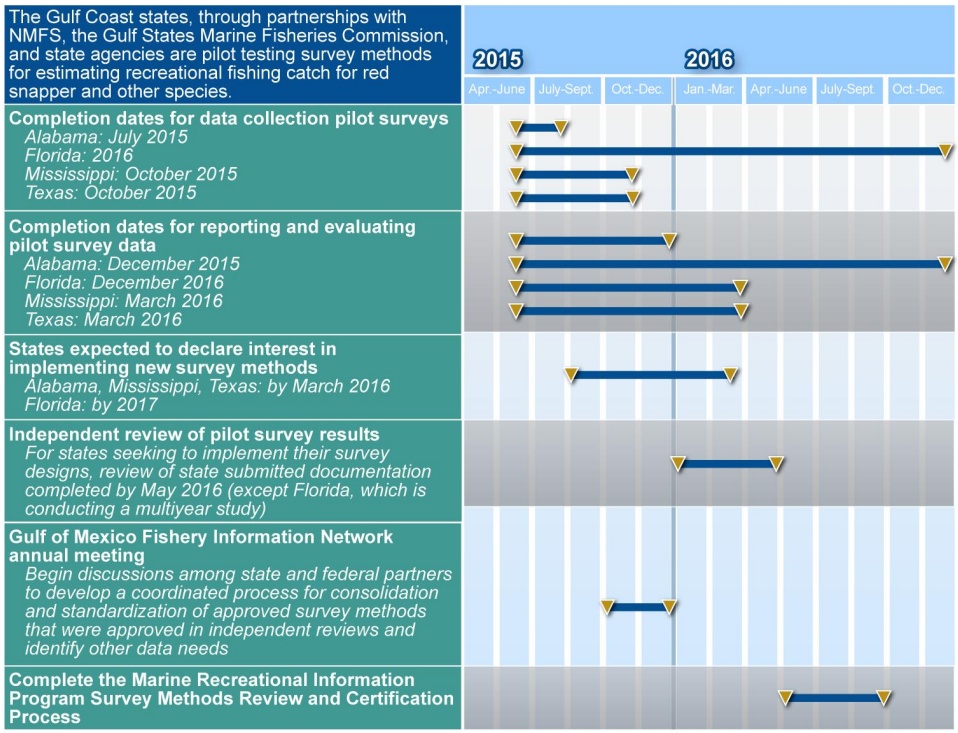
Source: GAO analysis of National Marine Fisheries Service information. | GAO-16-131

However, even with the various steps NMFS has taken, agency officials said that some challenges persist. For example, according to NMFS officials we interviewed, NMFS uses independent checks to either validate self-reported data or estimate a reporting error that can be used to produce unbiased estimates, but the agency faces challenges in independently validating and verifying self-reported angler data. In addition, NMFS officials told us the 2006 National Research Council report contains recommendations that the agency has not yet addressed, including developing methods for improving the accuracy of estimates for the number of discarded fish and addressing the potential bias resulting from the exclusion of private access sites from shoreside surveys. NMFS officials agreed that additional effort should be undertaken through MRIP to evaluate alternative methods for obtaining and verifying discard data. According to NMFS officials, they initiated a process in October 2015 for developing strategies to address these challenges.

Addressing Data Timeliness Challenges

NMFS has begun taking steps to improve the timeliness of its recreational fisheries data to support certain fisheries management decisions but, according to NMFS officials and stakeholders, this data timeliness challenge has not been fully addressed. For example, according to NMFS documentation, in fiscal year 2015, NMFS began studying the feasibility of moving from a 2-month survey period to a 1-month survey period—that is, conducting the survey each month to collect data on the previous month's fishing activity—in its new mail-based Fishing Effort Survey as a way to help reduce recall errors and improve the precision and timeliness of recreational fishing effort estimates. However, some stakeholders told us that NMFS' new mail-based Fishing Effort Survey will still not provide enough timely data to inform in-season closure decisions for federal Gulf of Mexico red snapper seasons. NMFS officials acknowledged limitations with its approach, noting that in-season closure decisions are based on the previous year's recreational fishing catch estimates. According to NMFS officials, beginning in 2013, NMFS coordinated a series of MRIP workshops with fisheries officials from Alabama, Florida, Louisiana, Mississippi, and Texas to discuss options for improving the timeliness of data to support Gulf of Mexico red snapper in-season closure decisions. NMFS officials told us that they will continue to collaborate with their Gulf state partners to develop supplemental surveys focused on red snapper that can be integrated with the more general MRIP survey approach. According to NMFS officials, NMFS and the Gulf of Mexico Fisheries Information Network recently developed a timeline that describes the process and timing for making key decisions about future red snapper specialized survey methods, as shown in figure 7. NMFS officials told us as of October 2015 the states concurred with the timeline.

Figure 7: Timeline of the National Marine Fisheries Service's Implementation of Red Snapper Specialized Survey Methods



Note: According to NMFS, in addition to the specialized surveys for Gulf of Mexico red snapper, in 2015, Louisiana conducted its own LA Creel survey in tandem with NMFS' Access Point Angler Intercept Survey for comparison purposes. In addition, in 2015, NMFS reviewed the LA Creel survey design to determine whether it met NMFS' survey data certification standards and will make a certification decision by the end of calendar year 2015, according to NMFS officials.

NMFS = National Marine Fisheries Service.

Source: National Marine Fisheries Service. | GAO-16-131

According to NMFS and a state official, addressing some of the data collection challenges related to quality and timeliness entails making trade-offs. For example, according to NMFS officials, NMFS also held a workshop in March 2011 with several recreational fishing stakeholders, such as states and councils, to address the need for more timely and precise updates in a short-season fishery. NMFS officials told us the workshop identified several ways in which improvements could be made, but they concluded that more resources beyond what MRIP could afford would be needed to implement those improvements. NMFS' new Fishing Effort Survey collects data on recreational fishing effort that targets many fish stocks, including some that do not need timely data necessary to make fishery management decisions within a shortened federal fishing

season. However, according to NMFS officials and a state official, to implement a separate survey that specifically targets Gulf of Mexico red snapper would likely entail adding additional resources to this effort that would need to be taken from other surveys, such as the Fishing Effort Survey. According to NMFS officials, trade-offs also are often necessary to balance the competing needs of state and federal fisheries management and, as a result, NMFS prioritizes among competing demands for data. NMFS has attempted to address the need to understand the trade-offs involved in data collection; according to NMFS documentation, tools intended to help evaluate possible resource allocation trade-offs were expected to be available for use in 2014. However, according to NMFS officials, the tools were not in place as of October 2015, and NMFS has not determined when the tools will be available. The officials said that the tools were being developed in collaboration with academia, but the project stalled because the project leader left the academic institution, and the institution has not yet found a replacement.

Addressing Challenges in Communication

NMFS has also taken steps to improve communication with recreational fisheries stakeholders about recreational data collection. NMFS has worked with its MRIP Executive Steering Committee to address priority communication initiatives through various MRIP teams. For example, the MRIP communications and education team plans to implement a communications strategy—entailing various communication activities such as webinars—to support the transition from the Coastal Household Telephone Survey to MRIP's new mail-based Fishing Effort Survey. According to NMFS officials, the agency is developing an MRIP strategic communications plan to guide its transition to the Fishing Effort Survey that was expected to be finalized by the end of October 2015. To further enhance MRIP communications, in 2014, the MRIP communications and education team began restructuring its communications network by developing MRIP communication teams at the regional level.

Some of NMFS' steps to improve communication have resulted in increased collaboration with recreational fisheries stakeholders, according to NMFS and state officials. For example, according to a state fisheries official, NMFS coordinated with the state to provide state officials greater input in determining observer assignment schedules and locations as part of the new protocols for the Access Point Angler Intercept Survey. NMFS officials told us that they are also working collaboratively with Louisiana to perform a side-by-side comparison of MRIP data with data collected under Louisiana's LA Creel data collection program, to determine whether LA Creel can be used as an alternative to MRIP surveys. According to

NMFS officials, in early 2016, NMFS and Louisiana plan to evaluate the results of the side-by-side comparison to determine next steps. Regarding stakeholder concerns about NMFS' lack of data on fish stock abundance in reef habitats, NMFS officials told us that NMFS plans to use data collected by academic partners on red snapper abundance on artificial reefs in its Gulf of Mexico red snapper fish stock assessment. NMFS also has worked with the Atlantic States Marine Fisheries Commission and the Atlantic Coastal Cooperative Statistics Program to transition from a NMFS-led data collection system to a state-led data collection approach. In 2016, according to a NMFS official, the Atlantic Coast states will assume responsibility for conducting the Access Point Angler Intercept Survey shoreside interviews to collect marine recreational fishing data from anglers, and NMFS' role will be to review, certify, and provide funds to support these data collection efforts.

NMFS is also placing renewed emphasis on collaborating with its regional partners to determine future data collection needs and priorities for improving recreational fisheries effort and catch surveys, according to NMFS documents. For example, NMFS' 2013-2014 MRIP implementation plan recommended establishing a hybrid approach to MRIP data collection.[19] Under this approach, NMFS is to maintain a central role in developing and certifying survey methods and establishing national standards and best practices for data collection, while regions—through the regional fishery information networks or their equivalent—are to be responsible for selecting survey methods and managing data collection. According to NMFS officials and NMFS documentation, NMFS staff participated in a workshop in July 2013 to discuss the initial planning stages for developing this new regional approach to recreational fisheries data collection. According to NMFS officials, NMFS is developing MRIP Regional Implementation Plans to address regional data collection needs

[19]An initial MRIP implementation plan was issued in October 2008. Since then, NMFS has issued several MRIP implementation plan status updates that describe various MRIP initiatives and contain information on program accomplishments and priorities.

and priorities.[20] The NMFS officials said that the West Coast region is scheduled to have a Regional Implementation Plan in early 2016. The officials said the Atlantic and Gulf Coast regions support the new approach to data collection and plan to complete their respective MRIP Regional Implementation Plans in 2016. As part of the new hybrid MRIP data collection approach, NMFS is in the process of identifying regional recreational fisheries data collection funding priorities.

Challenges related to how NMFS communicates with stakeholders, however, persist. For example, some Gulf Coast state fisheries officials expressed concerns that NMFS has not provided sufficient information to improve communication regarding its recreational fisheries data collection activities. One state fisheries official said that NMFS has made some progress working with stakeholders to identify MRIP initiatives to improve recreational fisheries data collection, but it has not adequately communicated how it intends to coordinate and collaborate with its stakeholders to implement MRIP initiatives. Some stakeholders continue to express concerns that NMFS is not adequately communicating its process for developing Gulf of Mexico red snapper catch and effort estimates. For example, some stakeholders cited the presence of larger and more numerous red snapper in the Gulf of Mexico and do not understand the need for continued catch limits and fishing restrictions. NMFS officials told us that, although the Gulf red snapper population is rebounding, and the average weight of red snapper that are caught by anglers has increased, NMFS' most recent stock assessment confirms that Gulf red snapper continue to be overfished. Therefore, as required by the Magnuson-Stevens Act, red snapper continue to be managed under a stock rebuilding plan. According to these officials, annual catch limits for red snapper are being reached more quickly due to several factors, including higher catch rates and more fishing effort being directed at the more abundant rebuilding stock. This has required even shorter fishing seasons despite increasing stock abundance, as well as corresponding increases to annual catch limits. NMFS officials stated that, in response to

[20]According to NMFS documentation, MRIP Regional Implementation Plans are to include descriptions of regional needs for recreational fishing statistics, including needs for coverage, precision, and timeliness of survey estimates; a baseline assessment of current data collection programs, including assessing the extent to which current programs satisfy needs and identifying data collection gaps; recommendations and justification for a sequential, prioritized approach for implementing improved methods that address national and regional needs that are currently unmet; and estimated costs overall and for individual survey components.

a history of exceedance of annual red snapper catch limits and litigation, NMFS is now setting the length of the red snapper fishing season based on a recommendation by the Gulf of Mexico Fishery Management Council to use a buffer of 20 percent of the annual catch limit.[21] This buffer is intended to account for uncertainty resulting from the difficulty of obtaining timely and precise catch estimates, as well as uncertainty stemming from state regulations that provide for longer seasons in state waters. NMFS officials acknowledged that achieving stakeholder understanding of this complex process is an ongoing concern, but they told us they plan to continue communicating with stakeholders to help convey the rationale behind NMFS' fisheries management decisions.

NMFS Does Not Have a Comprehensive Strategy to Guide Its Data Collection Improvement Efforts

NMFS has taken steps aimed at addressing several data collection challenges, but it does not have a comprehensive strategy to guide its efforts to improve recreational fisheries data collection. The Government Performance and Results Act Modernization Act of 2010 requires, among other things, that federal agencies develop long-term strategic plans that include agency-wide goals and strategies for achieving those goals.[22] Our body of work has shown that these requirements also can serve as leading practices at lower levels within federal agencies, such as at NMFS, to assist with planning for individual programs or initiatives that are particularly challenging.[23] Taken together, the strategic planning elements established under the act and associated Office of Management and Budget guidance, and practices we have identified, provide a framework of leading practices in federal strategic planning and

[21]The council requested that NMFS set the length of the fishing season based on an "annual catch target" that is 80 percent of the overall recreational quota for red snapper. The remaining 20 percent constitutes a buffer to reduce the likelihood of the quota being exceeded.

[22]Government Performance and Results Act Modernization Act of 2010, Pub. L. No. 111-352, § 2, 124 Stat. 3866, 3866-67 (2011).

[23]For example, see GAO-09-192 and GAO, *Pipeline Safety: Management of the Office of Pipeline Safety's Enforcement Program Needs Further Strengthening,* GAO-04-801 (Washington, D.C.: July 23, 2004).

characteristics of good performance measures.[24] These practices include defining a program's or initiative's goals, defining strategies and identifying the resources needed to achieve the goals, and developing time frames and using performance measures to track progress in achieving them and inform management decision making. Furthermore, key practices related to communication call for communicating information early and often and developing a clear and consistent communications strategy to help develop an understanding about the purpose of planned changes, build trust among stakeholders and the public, cultivate strong relationships, and enhance ownership for transition or transformation.[25]

According to a NMFS official, the initial 2008 MRIP implementation plan and the subsequent updates are the key documents used to guide NMFS' recreational fisheries data collection efforts. However, based on our review, NMFS' MRIP implementation plans do not constitute a comprehensive strategy for improving recreational fisheries data collection consistent with the framework previously discussed. For example, the implementation plans do not consistently and clearly define NMFS' goals, identify the resources needed to achieve the goals, or develop time frames or performance measures to track progress in achieving them.

Based on our analysis, NMFS does not have a comprehensive strategy because it has been focused primarily on implementing the recommendations of the 2006 National Research Council report. A NMFS official confirmed that MRIP initially focused on implementing the recommendations in the 2006 National Research Council report and meeting the requirements to improve recreational fisheries data collection as described in the Magnuson-Stevens Reauthorization Act that was passed in 2006. According to NMFS officials, the agency's first priority was to address the recreational fisheries survey design issues identified

[24]For example, see GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act,* GAO/GGD-96-118 (Washington, D.C.: June 1, 1996); *Tax Administration: IRS Needs to Further Refine Its Tax Filing Season Performance Measures,* GAO-03-143 (Washington, D.C.: Nov. 22, 2002); *Managing for Results: Enhancing Agency Use of Performance Information for Management Decision Making*, GAO-05-927 (Washington D.C.: Sept. 9, 2005); and Office of Management and Budget, Circular No. A-11, *Preparation, Submission, and Execution of the Budget (*2015).

[25]See GAO-09-192 and GAO-03-669.

in the 2006 National Research Council report. Specifically, NMFS determined that it would first design, test, review, certify, and implement new survey designs, such as the new mail-based Fishing Effort Survey. As previously discussed, NMFS intends to transition to a regional data collection approach whereby the agency will collaborate with regional stakeholders, such as states, to identify regional data collection needs. NMFS officials told us that, in hindsight, NMFS could have benefited from a more robust strategic planning approach to MRIP implementation and stated that NMFS recognizes the need to enhance its strategic planning as it begins to transition to a regional data collection approach. NMFS officials told us that NMFS intends to develop strategic planning documents to guide future individual initiatives, using NMFS' experiences with the transition to the new mail-based Fishing Effort Survey as a template, but they did not provide information about how, or whether, they planned to integrate these documents into a comprehensive strategy or how they would communicate such a strategy to NMFS' stakeholders. Without a comprehensive strategy, NMFS may have difficulty ensuring that the variety of steps it is taking to improve data collection are prioritized so that the most important steps are undertaken first and may find it difficult to determine the extent to which these steps will help address challenges. Further, without communicating the strategy and NMFS' progress in implementing it, NMFS may have difficulty building trust among its stakeholders, and these stakeholders may have difficulty tracking the agency's efforts.

Conclusions

Recognizing the importance of collecting quality and timely data at an acceptable cost to guide recreational fisheries management and conduct fish stock assessments, NMFS has taken many steps to improve its data collection, such as funding several pilot programs to test alternative data collection methods. NMFS has also initiated a fundamental shift in its data collection approach, envisioning a standard-setting and oversight role for NMFS rather than actual data collection, which is to be carried out by partners. However, NMFS does not have a comprehensive strategy to guide the implementation of its various efforts. Without a comprehensive strategy and associated performance measures to assess progress, NMFS may have difficulty ensuring that the variety of steps it is taking to help address the challenges it faces are prioritized so that the most important steps are undertaken first. Likewise, NMFS may have difficulty determining the extent to which these steps will help address challenges or if a different approach may be needed. Moreover, without clearly communicating the strategy to its stakeholders, NMFS may find it difficult

to build trust, potentially limiting its ability to effectively implement MRIP improvement initiatives that rely on data collection partners.

Recommendation for Executive Action

To improve NMFS' ability to capitalize on its efforts to improve fisheries data collection for managing marine recreational fisheries, we recommend that the Secretary of Commerce direct NOAA's Assistant Administrator for Fisheries to develop a comprehensive strategy to guide NMFS' implementation of its marine recreational fisheries data collection program efforts, including a means to measure progress in implementing this strategy and to communicate information to stakeholders. As part of this strategy, NMFS should clearly identify and communicate programmatic goals, determine the program activities and resources needed to accomplish the goals, and establish time frames and performance measures to track progress in implementing the strategy and accomplishing goals.

Agency Comments and Our Evaluation

We provided a draft of this report to the Department of Commerce for comment. In its written comments (reproduced in app. II), NOAA, providing comments on behalf of Commerce, agreed with our recommendation that NMFS develop a comprehensive strategy to guide the implementation of its marine recreational fisheries data collection program efforts. NOAA stated that it agrees that transitioning from a primarily research and development focused program to one that is more focused on implementing improvements to recreational fisheries data collection presents an opportunity to engage in strategic planning. Specifically, NOAA stated it will work with its regional stakeholders over the next year to develop MRIP implementation plans that include milestones, timelines, performance metrics, and resource needs. In addition, NOAA stated that a new National Research Council review of its recreational fisheries data collection program will help to inform its strategic planning effort.

NOAA also provided three general comments. First, NOAA stated that our report disproportionally included interviewees from the Gulf Coast, which may weigh the report's conclusions differently than if other regions were more fully represented. As noted in our scope and methodology appendix (app. I), we selected federal and state agencies and regional organizations to interview based on such factors as geographic representation and locations of large volumes of recreational fishing. According to NMFS statistics, the largest volumes of recreational fishing are in the Gulf of Mexico. As a result, we believe that our selection of

agencies and organizations, while not nationally representative, nevertheless provides an appropriate set of perspectives on recreational fisheries management. Second, NOAA stated that it interpreted our statement that we did not conduct a technical evaluation to mean that we are suggesting that a technical evaluation is needed to determine whether NMFS has appropriately prioritized its recreational fisheries data collection challenges. We did not conduct a technical evaluation because it was not within the scope of our review, and it was not our intent to suggest that a technical evaluation is needed. Third, NOAA stated that, while the report identifies several unaddressed recreational fisheries data collection challenges, it does not mention that the challenges require funding levels above the current MRIP budget. Addressing whether NMFS funding levels are sufficient to address the data collection challenges it faces was not within the scope of our review. We do, however, note in our report the importance of making trade-offs in addressing challenges and allocating resources. NOAA also provided technical comments, which we incorporated as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees, the Secretary of Commerce, the NOAA Assistant Administrator for Fisheries, and other interested parties. In addition, the report will be available at no charge on the GAO website at http://www.gao.gov.

If you or your staff members have any questions about this report, please contact me at (202) 512-3841 or fennella@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix III.

Anne-Marie Fennell
Director, Natural Resources and Environment

List of Requesters

The Honorable Marco Rubio
Chairman
Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Thad Cochran
United States Senate

The Honorable Jeff Sessions
United States Senate

The Honorable Richard Shelby
United States Senate

The Honorable David Vitter
United States Senate

The Honorable Roger F. Wicker
United States Senate

Appendix I: Objectives, Scope, and Methodology

Our objectives were to examine (1) the challenges that have been identified with the National Marine Fisheries Service's (NMFS) data collection efforts for managing marine recreational fisheries and (2) the steps NMFS has taken to improve data collection and challenges that remain.

To conduct our work, we reviewed and analyzed relevant laws, agency policies, guidance, and other documentation related to fisheries data collection, including documentation related to specific federal and state marine recreational fisheries data collection projects.[1] We also reviewed previous GAO work related to fisheries management.[2] To determine the challenges that have been identified with NMFS' data collection efforts, we first reviewed reports and evaluations of NMFS' data collection programs issued since 2006 from the National Research Council, the Department of Commerce Inspector General, NMFS, states, and independent consultants and assessed the extent to which they discussed data collection challenges.[3] Of these reports, we relied primarily on the findings of the National Research Council and NMFS to identify data collection challenges. To obtain insights into the challenges identified in these documents, as well as to obtain information on any additional challenges, we interviewed officials from NMFS headquarters and three of NMFS' six regional Fisheries Science Centers (Northeast, Northwest, and Southeast); representatives of three of the eight Regional Fishery Management Councils (Gulf of Mexico, Pacific, and South Atlantic) and all three interstate Marine Fisheries Commissions (Atlantic, Gulf, and Pacific States); and officials from state fisheries agencies in Alabama, Florida, Louisiana, Mississippi, North Carolina, Rhode Island, Texas, and Washington. We selected federal and state agencies and regional organizations to interview based on such factors as geographic representation, locations of large volumes of recreational fishing, and representation from key data collection and management stakeholders.[4] The views of representatives from the agencies and organizations we

[1]See, for example, Magnuson-Stevens Fishery Conservation and Management Act.

[2]See, for example, GAO-14-794R.

[3]See, for example, National Research Council, Ocean Studies Board, Committee on the Review of Recreational Fisheries Survey Methods, *Review of Recreational Fisheries Survey Methods* (Washington, D.C.: 2006).

[4]According to NMFS statistics, the largest volumes of recreational fishing are in the Gulf of Mexico, followed by the South Atlantic, and then the mid-Atlantic regions.

contacted are not generalizable to other agencies and organizations, but they provided various perspectives on recreational fisheries management. In addition, to obtain additional information about data collected by the recreational fishing sector and challenges associated with data collection, as well as to obtain views on recreational fisheries data collection generally, we interviewed 22 nongovernmental marine recreational fisheries stakeholders. Of these stakeholders, 17 had expressed interest in, or concerns about, NMFS' recreational fisheries data collection to congressional staff. These stakeholders added to the geographic variation and the recreational fishing sectors represented in our review, but their views do not represent the views of NMFS stakeholders generally. To supplement views on recreational fisheries data collection, we interviewed 5 additional stakeholders, including 4 stakeholders identified by NMFS and 1 stakeholder we identified through our previous work on fisheries management.[5] The 22 stakeholders we interviewed included charter boat owners, private recreational anglers, members of academia, and advocacy groups, among others, and represented various geographic locations and different recreational fishing sectors. The NMFS statistical surveys used to collect data for managing recreational fisheries cover a wide range of methods, apply to a wide diversity of locations and often entail in-depth technical knowledge about fisheries data collection. For these reasons, we did not conduct a technical evaluation of these challenges or assess their technical validity.

To determine the steps NMFS has taken to improve data collection and challenges that remain, we conducted interviews as described above and reviewed NMFS' reports and other documents. Specifically, we reviewed NMFS' strategic plans, recreational fisheries planning documents, and recreational fisheries data collection program documents.[6] We compared this information with the framework of leading practices in federal strategic planning contained in the Government Performance and Results Act of 1993, the Government Performance and Results Act Modernization Act of 2010, and Office of Management and Budget guidance. We also compared this information to key practices related to communication we

[5]GAO-14-794R.

[6]See, for example, National Marine Fisheries Service, *Development and Testing of Recreational Fishing Effort Surveys: Testing a Mail Survey Design, Final Report*, July 31, 2014.

identified in previous reports.[7] Consistent with our approach to the previous objective, we did not conduct a technical evaluation of NMFS' steps to improve data collection or assess the appropriateness of those steps in light of the challenges NMFS faces.

We conducted this performance audit from July 2014 to December 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

[7]See, for example, GAO-09-192 and GAO-03-669.

Appendix II: Comments from the Department of Commerce

THE DEPUTY SECRETARY OF COMMERCE
Washington, D.C. 20230

November 19, 2015

Ms. Anne-Marie Fennell
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Ms. Fennell:

Thank you for the opportunity to review and comment on the Government Accountability Office's (GAO) draft report titled *Recreational Fisheries Management: The National Marine Fisheries Service Should Develop a Comprehensive Strategy to Guide Its Data Collection Efforts* (GAO-16-131). Enclosed are the National Oceanic and Atmospheric Administration's programmatic comments to the draft report.

If you have any questions, please contact me or Jim Stowers, Acting Assistant Secretary for Legislative and Intergovernmental Affairs, at (202) 482-3663.

Sincerely,

Bruce H. Andrews
Deputy Secretary of Commerce

Enclosure

Department of Commerce
National Oceanic and Atmospheric Administration
Response to the GAO Draft Report Entitled
Recreational Fisheries Management: The National Marine Fisheries Service Should Develop a Comprehensive Strategy to Guide Its Data Collection Efforts
(GAO-16-131, December 2015)

General Comments

The Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) appreciates the opportunity to review the Governmental Accountability Office's (GAO) draft report on recreational fisheries management. Please see our comments below, specifically prepared by NOAA's National Marine Fisheries Service (NMFS).

1. The GAO report examines challenges that have been identified with the agency's data collection efforts for managing marine recreational fisheries, examines steps taken by the agency to improve data collection, and identifies challenges that remain. To support its analyses, the report relies on laws, agency policies, and guidance related to Federal and State recreational fisheries data collection methods; NMFS' and external documents on recreational fisheries data collection; and, interviews to obtain views on NMFS' data collection efforts from Federal and State recreational fisheries officials and other stakeholders selected to provide geographic representation.

   Interviews were conducted with the following partner organizations:

   State officials
   FL, AL, MS, LA, and TX – all five Gulf States
   NC and RI – two of 15 Atlantic States
   WA – one of three Pacific States

   Regional Fishery Management Councils (FMCs)
   Gulf of Mexico FMC, South Atlantic FMC, and Pacific FMC – three of eight regional councils

   Interstate Marine Fishery Commissions/Fishery Information Networks (FINs)
   All three commissions, but only two of the three FINs (Gulf FIN and Pacific FIN, but not the Atlantic Coastal Cooperative Statistics Program)

   On pages 2-3 of the report, GAO states, "We determined that the selection of these entities and individuals was appropriate for our design and objectives, and that the selection would generate valid and reliable evidence to support our work."

   Comment: The disproportionate representation of Gulf Coast partners may weigh the report's conclusions differently than if other regions were better represented through the interview process. No interviews were conducted with key partners in the western Pacific, Caribbean, or Atlantic Highly Migratory Species partner communities. Both the Atlantic and

Pacific Coasts appear underrepresented. Accordingly, the report states on page 3 that "The results of our interviews cannot be generalized to all stakeholders or data collection activities, but they provide examples of different recreational fisheries data collection efforts and challenges." We agree with this statement and suggest that a more representative group of partner interviews might have resulted in additional or differently weighted conclusions about our challenges and Marine Recreational Information Program's (MRIP) progress in addressing these challenges.

2. On page 3, the report states "…we did not conduct a technical evaluation of these challenges or assess their technical validity." On the same page, the report also states "Consistent with our approach to the previous objective, we did not conduct a technical evaluation of NMFS' steps to improve data collection or assess the appropriateness of those steps in light of the challenges NMFS faces." These are important points because they suggest that an additional technical evaluation is needed to determine whether NMFS has appropriately prioritized MRIP's challenges.

3. The report identifies several unaddressed challenges, but fails to address that such challenges require funding levels above the current MRIP budget. For example, on page 14 in the section "Obtaining a sufficient number of survey responses and biological samples," the report indicates that State officials informed GAO that NMFS does not allocate sufficient levels of sampling for catch data and biological data on catch. Another example is on page 16, where the report notes that NMFS and State officials told GAO, "NMFS' data collection systems have not evolved quickly enough to support management decision making. It may help the reader's interpretation of examples such as these if the report acknowledged that a substantial increase in funding would be needed to implement the increased sampling levels that would be necessary to provide more frequent in-season tracking of recreational catches with well-designed statistical surveys.

NOAA's Response to GAO Recommendation

The draft GAO report states, "To improve NMFS' ability to capitalize on its efforts to improve fisheries data collection for managing marine recreational fisheries, we recommend that the Secretary of Commerce direct the NOAA Assistant Administrator for Fisheries:"

Recommendation 1: "To develop a comprehensive strategy to guide NMFS' implementation of its marine recreational fisheries data collection program efforts, including a means to measure progress in implementing this strategy and to communicate information to stakeholders. As part of this strategy, NMFS should clearly identify and communicate programmatic goals, determine the program activities and resources needed to accomplish the goals, and establish timeframes and performance measures to track progress in implementing the strategy and accomplishing goals."

NOAA Response: NOAA concurs with this recommendation. As articulated in the October 2008 Implementation Plan, MRIP has followed a strategy that sequenced its priorities as:

- First, address the fundamental design issues raised by the 2006 National Research Council (NRC) review (e.g., improperly weighted data used in estimation, potential bias in shoreside survey design, and potential bias in telephone survey).

- Design, test, peer review, and certify new and improved survey designs.
- Implement improvements that address the fundamental design issues.

- Then, scale up data collection to address regional needs for improved precision, timeliness, coverage, and special needs.

As of 2015, substantial progress has been made in implementing improved survey designs that address the fundamental design issues raised by the NRC Panel. NMFS agrees that transitioning from a primarily research and development focused program to one that is more focused on implementing survey improvements, as discussed at pages 25-26 of the report, presents an opportunity to engage in strategic planning. This will help us develop an enhanced approach to managing the program.

The current initiatives to develop MRIP Regional Implementation Plans and initiate a new NRC review of the program's progress to date, represent important milestones on the path to developing a comprehensive strategic plan. Over the next year, we will work with our regional partners to develop MRIP Regional Implementation Plans that include milestones, timelines, appropriate performance metrics, and resource needs. We will simultaneously work to develop national-level strategic planning that will set overall programmatic goals, strategies, and priorities; provide ongoing guidance to the regional planning efforts; and lay out a schedule for addressing remaining overall needs for improving the designs of the surveys (e.g., developing methods for assessing private access catch, evaluating accuracy of released catch data, etc.). This effort will be further informed by the findings and recommendations of the NRC in its review of MRIP.

NMFS will initiate this strategic planning effort in the second quarter of FY 2016, to be completed within 6 months of receipt of the new NRC review, so that the NRC's findings and recommendations can be incorporated into the MRIP program.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Anne-Marie Fennell, (202) 512-3841 or fennella@gao.gov

Staff Acknowledgments

In addition to the individual named above, Steve Gaty (Assistant Director), Steve Secrist (Assistant Director), Leo Acosta (Analyst-in-Charge), Mark Braza, Joseph Capuano, Elizabeth Curda, John Delicath, Richard Johnson, Jerry Leverich, Jeanette Soares, and Sara Sullivan made contributions to this report.

Appendix IV: Accessible Data

Agency Comment Letter

Text of Appendix II: Comments from the Department of Commerce

Page 1

November 19, 2015

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Director, Natural Resources and Environment U.S, Government Accountability Office

441 G Street, NW Washington, DC 20548

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Enclosure

Page 2

Department of Commerce

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Recreational Fisheries Management: The National Marine Fisheries Service Should Develop a Comprehensive Strategy to Guide Its Data Collection Efforts

(GAO-16-131, December 2015)

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Page 4

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This effort will be further informed by the findings and recommendations of the NRC in its review of MRIP.

NMFS will initiate this strategic planning effort in the second quarter of FY 2016, to be completed within 6 months of receipt of the new NRC review, so that the NRC's findings and recommendations can be incorporated into the MRIP program.

Data Tables

Data Table for Figure 1: Marine Recreational Fishing Statistics and Locations of Highest Fishing Activity

Map showing the continental US, with shading for the states waters, the Exclusive Economic Zone, and the region with the highest level of fishing activity offshore. The Gulf of Mexico as the highest, the South Atlantic second, and the Mid-Atlantic third).

- 11 million - Number of anglers that made 71 million marine recreational fishing trips in 2013 in the continental United States.
- $24.5 billion - Estimated dollars spent by marine recreational anglers on fishing trips and equipment in the United States in 2012.
- 430 million - Number of fish caught by marine recreational anglers in 2013 in the continental United States. Approximately 10% of the catch came from the United States Exclusive Economic Zone.
- 61% - Percentage of fish caught by marine recreational anglers in 2013 in the continental United States that were released after they were caught.

Legend:

State territorial seas (generally extending up to 3 geographical miles from the coastline)

U.S. Exclusive Economic Zone (generally from up to 200 nautical miles from shore)

Gulf of Mexico - highest levels of marine recreational fishing activity

South Atlantic - second highest levels of marine recreational fishing activity

Mid-Atlantic - third highest levels of marine recreational fishing activity

Note: These statistics are approximate and do not include Alaska.

Data Table for Figure 2: Key Stakeholders in Marine Recreational Fisheries Data Collection and Management

NMFS

- Office of Science and Technology
- Marine Recreational Information Program
- Regional Fisheries Science Centers (6): Alaska, Northeast, Northwest, Pacific Islands, Southeast and Caribbean, and Southwest
- Regional Offices (5): Alaska, Greater Atlantic, Pacific Islands, Southeast, and West Coast

Other Governmental Stakeholders:

- Regional Fishery Management Councils (8): Caribbean, Gulf of Mexico, Mid-Atlantic, New England, North Pacific, Pacific, South Atlantic, Western Pacific
- Interstate Marine Fisheries Commissions (3): Atlantic states, Gulf states, and Pacific states
- Fishery Information Networks (4): Atlantic Coastal Cooperative Statistics Program, Gulf Fisheries Information Network, Pacific Recreational Fisheries Information Network, and Western Pacific Fisheries Information Network
- Coastal states and U.S. territories

Other Key Stakeholders:

- Private Anglers

- Charter boat/Head-boat Owners and Operators
- Recreational Fisheries Associations
- Nongovernmental Organizations and Environmental Groups

Data Table for Figure 3: Estimating Total Marine Recreational Fisheries Catch

Three illustrations showing:

1. Effort: Estimated number of angler trips
2. Catch Rate: Estimated number of fish caught per angler trip
3. Total Catch: Estimated fish mortality related to marine recreational fishing activity

Data Table for Figure 4: Timeline of Key Events in Marine Recreational Fisheries Data Collection and Management

Timeline noting the following events:

- 1976 - Magnuson-Stevens Fishery Conservation and Management Act passed
- 1996 – Magnuson-Stevens Fishery Conservation and Management Act amended
- 2006 – Magnuson-Stevens Fishery Conservation and Management Reauthorization Act passed
- 1979 – NMFS implements Marine Recreational Fisheries Statistics Survey
- 2004 – NMFS requests a National Research Council review of its marine recreational fisheries data collection program
- 2006 – 2006 – National Research Council issues report with recommendations to address weaknesses in NMFS' marine recreational fisheries data collection methods
- 2008 – NMFS establishes the Marine Recreational Information Program in response to the recommendations of the National Research Council review and the requirements of the 2006 Magnuson-Stevens Reauthorization Act

Data Table for Figure 5: Timeline of the National Marine Fisheries Service's Planned Transition to Fishing Effort Survey

Timeline and tabular text

- January 2015 to December 2017 – Side-by-side benchmarking of the Coastal Household Telephone Survey and Fishing Effort Survey to identify and account for factors leading to differences in the estimates.

- September 2015 – early 2017 – Develop calibration model to enable an “apples-to-apples” comparison between the Coastal Household Telephone Survey and Fishing Effort Survey estimates.
- Late April – November 2017 – Re-estimation of historical catch to generate a time series of recreational catch statistics.
- July - December 2017 – Incorporate new estimates into fish stock assessments.
- November 2017 – New estimates will be used to inform fisheries management decisions, such as annual catch limits.

Note: Effort is the number of angler trips taken, while catch is the number and size of fish, by species, that are brought to shore, caught and used as bait, or discarded (i.e., caught but then released alive or dead).

Data Table for Figure 6: Examples of Recreational Fisheries Electronic Monitoring and Reporting Technologies

Two illustrations.

1. 1st illustration of a boat receiving satellite information.

- Electronic monitoring in the for-hire recreational fishing sector includes global positioning system receivers that track vessel locations and pinpoint fishing times to help collect fishing effort data and compliance with fishing restrictions.

2. 2nd Illustration of a computer

- Private anglers and for-hire fishing vessels can use electronic logbooks to report effort and catch data, and certain biological data, such as fish length and species.

Note: Effort is the number of angler trips taken, while catch is the number and size of fish, by species that are brought to shore, caught and used as bait, or discarded (i.e., caught but then released alive or dead).

Data Table for Figure 7: Timeline of the National Marine Fisheries Service’s Implementation of Red Snapper Specialized Survey Methods

Timeline with tabular text

The Gulf Coast states, through partnerships with NMFS, the Gulf States Marine Fisheries Commission, and state agencies are pilot testing survey methods for estimating recreational fishing catch for red snapper and other species.

Completion dates for data collection pilot surveys

1. Alabama: July 2015
2. Florida: 2016
3. Mississippi: October 2015
4. Texas: October 2015

States expected to declare interest in implementing new survey methods

1. Alabama: December 2015
2. Florida: December 2016
3. Mississippi: March 2016
4. Texas: March 2016

States expected to declare interest in implementing new survey methods

1. Alabama, Mississippi, Texas: by March 2016
2. Florida: by 2017

Independent review of pilot survey results (Jan to May 2016)

- For states seeking to implement their survey designs, review of state submitted documentation completed by May 2016 (except Florida, which is conducting a multiyear study)

Gulf of Mexico Fishery Information Network annual meeting (Oct 2015 to Jan. 2016)

- Begin discussions among state and federal partners to develop a coordinated process for consolidation and standardization of approved survey methods that were approved in independent reviews and identify other data needs

Complete the Marine Recreational Information Program Survey Methods Review and Certification Process (May 2016 to Oct 2016)

Illustration Notes:

- According to NMFS, in addition to the specialized surveys for Gulf of Mexico red snapper, in 2015, Louisiana conducted its own LA Creel survey in tandem with NMFS' Access Point Angler Intercept Survey

for comparison purposes. In addition, in 2015, NMFS reviewed the LA Creel survey design to determine whether it met NMFS' survey data certification standards and will make a certification decision by the end of calendar year 2015, according to NMFS officials.

- *NMFS = National Marine Fisheries Service.*