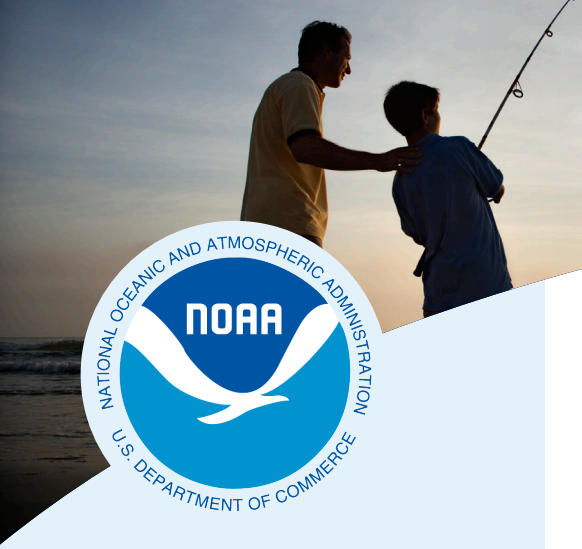

NOAA FISHERIES

Stakeholder Guide
to the Improved MRIP Effort Survey

In its 2006 review of NOAA Fisheries' methods for gathering, estimating, and reporting recreational fishing activity, the independent National Research Council (NRC) recommended a series of fundamental changes to how we conduct our surveys, and how we engage with our partners and stakeholders.

Over the past several years, we have been working on ways to improve our effort estimates on the Atlantic and Gulf Coasts. This is the information about how many people are fishing, how often and where they are fishing, and what species they target.

This guide outlines:

- The **science and statistics** behind why we're making the changes and how we arrived at a new method.
- The process for **transitioning into** the new method in a way that is transparent, inclusive, and scientifically rigorous.
- How the new method fits into the overall picture of **fishery health** and the mission of NOAA Fisheries to ensure the sustainability of the nation's marine resources for generations to come.

More information about the new effort survey is available on our website at www.countmyfish.noaa.gov.

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

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

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NOAA FISHERIES

Improved MRIP Effort Survey:
Reaching more anglers, more effectively

MRIP Effort Pilot Studies At-a-Glance:

WHERE:
FL, MA, NC, NY

GOALS:
- Identify a better method than random-digit dialing (RDD) to reach anglers.
- Determine the best way to use license and registration information and how to fill in gaps in registration databases.
- Establish the most effective methods for maximizing angler response.

WHAT WE TESTED:
- Telephone survey using license information only, in place of RDD.
- Telephone survey using RDD and license info together.
- Side-by-side mail vs. telephone survey.
- Mail-only survey using license info and U.S. Postal Service database.

KEY RESULTS:
- More people respond to mail surveys than to phone surveys.
- Estimates using mail surveys can be completed in a timely fashion.
- Although licenses and registrations cannot be our only source of contact information, using them increases survey efficiency and lowers costs.

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Why is MRIP making changes to the effort survey?

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

On the Atlantic and Gulf coasts, NOAA has traditionally estimated effort through the Coastal Household Telephone Survey (CHTS). The CHTS uses a method called random-digit dialing (RDD) targeting households in coastal counties. RDD has for years been widely accepted as an effective survey method, and focusing on the coastline has been the best way to find saltwater anglers. However, there are also several well-known shortcomings with this approach, as well as unique concerns that were raised by the National Research Council (NRC) in its review of our estimation methods:

- **RDD is inefficient at identifying anglers**. Many calls go to households where no anglers live, and we do not contact anglers who live inland.
- With more people abandoning landlines for **cell phones**, which are not included in our telephone survey, a growing number of potential anglers has become unreachable. Currently, only 60 percent of U.S. households have a landline phone, down from nearly 100 percent as recently as 1998.
- **Response rates**, or the number of people who actually pick up the phone and answer the questions, are declining for all telephone surveys. This is true whether for fishing effort, public opinion polls, or attitudes about a commercial product or service.

In addition, our research suggests that people may not do as well remembering all their fishing activity when asked over the phone.

All of these issues can result in bias, or factors that can skew our survey results. These include **undercoverage** (not reaching all anglers)**; nonresponse** (people not answering the survey); and **measurement error** (inaccurate answers by respondents). Over the past several years MRIP has conducted a series of pilot studies to determine the best way to redesign our effort survey to reduce these potential biases.

What are the major improvements?

Reaching anglers using two sample frames, including Registry information

One of the first major MRIP initiatives was to create a database of all the nation's recreational fishermen, the National Saltwater Angler Registry. This was a key recommendation of the NRC. The goal in launching the Registry was to create a national directory for reaching anglers. The list of potential survey respondents is what scientists call a sample frame.

However, the NRC also recognized that the Registry would not include all fishermen. Some fishermen – like seniors, children, and in some states active-duty military – are not required to register; others provide incomplete information. For our survey to have the highest validity, we must be able to reach all potential anglers. Therefore, we supplemented the Registry data with data from the U.S. Postal Service, which includes virtually all U.S. households. Using these frames minimizes the potential for **undercoverage** bias.

Reaching anglers by mail

One finding from our cumulative pilot studies is that a more efficient way to reach recreational anglers is through the mail. Respondents are far more likely to answer a mail survey than a phone call, and they may do a better job remembering all the trips they took during the survey period. Switching to a mail survey will reduce the risk of **nonresponse bias** and possibly bias resulting from **measurement error.**

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Improved MRIP Effort Survey:
Reaching more anglers, more effectively

Key Takeaways

- We are **moving away** from the Coastal Household Telephone Survey, which uses random-digit dialing of coastal households to contact anglers.
- We will be using **angler-supplied contact information** submitted through licensing and registration in our new fishing effort survey.
- Because not all saltwater anglers are licensed, and some license information we receive is inaccurate or incomplete, we're **supplementing** our survey sample frames with information supplied by the U.S. Postal Service.
- Research has shown that mail surveys are **more efficient** than telephone surveys for collecting trip information from anglers. This is consistent with other research showing that telephone surveys are seeing an overall decline in effectiveness, regardless of what they're used for.
- Based on the findings of our previous studies, we anticipate that **overall fishing effort estimates** will be higher using the new survey. However, this **does not mean** that overfishing has or is occurring.
- We have a **transition team in place** for managing the process of implementing the new survey.

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The Transition Process

As with any changes to angler surveys, we are unable to accurately predict what differences we will see in effort estimates based on our improved methodology. However, we know that we'll be doing a better job of contacting more anglers. This will include anglers who are not covered in the existing survey, which we expect will have an impact on the numbers.

From the results of our extensive series of pilot studies, we also know that our new survey will likely show increases – and in some cases potentially significant increases – in overall fishing effort. Because of the complex relationship between effort estimates and other data that go into determining fishery health, higher effort estimates alone do not necessarily mean that overfishing has or is occurring. In addition, we can't know how the results we've seen from our pilot study conducted over a limited amount of time and geography will play out on a larger scale. It will take a minimum of two years and further work before we can determine exactly how the new numbers compare with those from our current survey, and how they fit into the stock assessment – and ultimately management – processes.

To develop a transparent, inclusive means of converting to the new methods, MRIP has created a cross-disciplinary **Transition Team** consisting of managers, stock assessors, scientists, and state partners. The charge of the team is to produce a comprehensive transition strategy. Its work is just beginning, and will follow a four-step process:

- **Step 1: State and Regional Input** – The Transition Team will work with state and regional data partners and stakeholders to determine their top concerns and priorities with respect to the transition process.
- **Step 2: Side-by-Side Comparison** – NOAA Fisheries will conduct the new mail survey alongside the current coastal telephone survey on the Atlantic and Gulf Coasts in 2015 and 2016 (and additional years if necessary).
- **Step 3: Calibration** – The transition team will develop a method for calibrating the two sets of estimates and use it to adjust historical time series of data as necessary.
- **Step 4: Transition** – Decision-makers will carefully work the calibrated estimates into fishery stock assessments beginning in 2016. Managers will then begin using the results to set the fishing levels and annual catch limits. This will occur no earlier than 2017.

Detailed explanations of the factors driving differences between the survey methods, as well as the varying degrees of difference between states, fishing modes, and waves identified in the pilot study, can be found on our website, countmyfish.noaa.gov.

Transition Team

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Dave Van Voorhees (Co-Chair)
Rita Curtis

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Stock Assessment Data

Stock assessments are based on models of fish populations and require three primary categories of information: catch, abundance, and biology.

- **CATCH DATA** is information that we get directly from commercial, recreational, and for-hire fishermen through a broad array of reporting and survey programs.
- **ABUNDANCE DATA** comes from *fishery-independent* sources, meaning it is not collected from fishermen. Instead, scientists return to the same locations year after year to sample the amount and type of fish present there. This provides a lengthy time series of comparable data that is not subject to economic, weather, social, or other trends that may affect the amount of fishing from one year to the next.
- **BIOLOGICAL DATA** includes information on fish size, age, reproductive rates, and movement. Samples for biological studies are collected during fishery-independent surveys and obtained from observers on commercial and for-hire vessels and other fishery sampling programs. Academic programs and cooperative research with the fishing industry are other important sources of biological data.

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Effort Estimates and Fishery Health

Beginning in 2015, NOAA Fisheries will run the new mail-based survey with the potential to reach all fishing households alongside the current telephone survey of coastal households on the Atlantic and Gulf Coasts. Based on an extensive series of pilot tests conducted over the past several years, the new survey will produce more accurate estimates of the number of fishing trips that occur each year. The tests also indicate that the new survey will show an overall increase – and in some cases significant increases – in the total number of trips fishermen are taking.

Assessing the Health of Fish Stocks

The health of a given fishery is determined through an intensive and complex scientific process called a stock assessment. At the most fundamental level, the purpose of a stock assessment is to determine how many fish there are in a given population, and how many can be taken out of the population through fishing without the overall stock being negatively impacted. Information based on catch and effort estimates is one of the three types of data that go into a stock assessment (see sidebar). Individual recreational fishing is just one part of that data set, alongside commercial and for-hire fishing. This is not to suggest that individual recreational fishing is not important to fishery health. For some species, it accounts for the largest proportion of the annual catch, but it is just one piece of a much larger puzzle.

Stock Assessments and Recreational Effort

Based on what we know about stock assessments, one might assume that higher effort numbers would automatically mean that there are fewer fish out there to catch. However, this is not necessarily the case. Here's why:

- Our studies indicate that effort estimates are higher in the mail survey because we are doing a better job of capturing fishing activity, not because of a sudden rise in fishing. However, it will take multiple years of side-by-side comparison to fully understand the differences.
- Once we identify the factors that are making the numbers different, we can look back at historical estimates, calibrate the variance, and determine to the extent possible whether past fishing activity was higher than estimated.
- Because the number of fish being caught is an indicator of fishery health (see sidebar), if effort rates were actually *higher* in the past than we estimated, then there's a good chance we were *underestimating* the number of fish in the population to begin with.

Side-by-Side Testing

The purpose of the side-by-side survey comparison is to ensure that decisions impacting fisheries are based on data that has been thoroughly tested and is well-vetted. Research to date indicates our new effort survey will produce highly accurate results, yet we need to be able to understand any differences between methods to accurately incorporate the new numbers into stock assessments and management.

By maintaining the use of current data, we will be making decisions based on an "apples-to-apples" comparison from one year to the next. Running the new survey alongside the current survey will enable us to make calibrations between data sets, and transition from one method to the other in a way that is scientifically and statistically sound. As a key part of this process, assessment scientists are beginning to develop next-generation assessment modeling approaches that will be able to better accommodate catch recalibrations.