MARINE
RECREATIONAL INFORMATION
PROGRAM

FY 2015 Project Plan

Recall Error in a Recreational Fishing Effort Survey - Testing the Impacts of 1-Month Waves

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Operations Team

1. Overview

1.1. Background

In response to recommendations provided by the National Research Council (NRC), as well as mandates included in the Magnuson-Steven's Reauthorization Act (MSRA), MRIP is developing fishing effort surveys that sample from databases of licensed or registered saltwater anglers. Generally, these efforts have focused on designing dual-frame surveys that integrate angler license frames with residential address frames (address-based sampling or ABS). Specifically, MRIP has completed three pilot studies to test the feasibility of dual-frame mail survey designs and recently tested a mail survey design that augments residential address samples with information from state license databases. Without exception, address sampling provides greater coverage than the Coastal Household Telephone Survey (CHTS) or single-frame surveys that sample exclusively from databases of licensed anglers. Furthermore, mail survey designs have resulted in higher response rates than comparable telephone surveys, are not susceptible to coverage bias resulting from the increasing penetration of cell-only households, may be less susceptible to recall error than telephone interviews, and are capable of generating preliminary estimates in a timeframe comparable to that of current recreational fishing telephone surveys (Andrews et al. 2010, Brick et al. 2012, Andrews et al. 2013, Andrews et al. 2014). Based upon the results of these pilot studies, the project team has concluded that mail survey designs that integrate address sampling with state license databases are superior to the CHTS for monitoring marine recreational fishing effort (Andrews et al. 2014).

MRIP pilot studies testing alternative effort survey designs have explicitly examined several different sources of survey error, including coverage error, nonresponse error and sampling error. Measurement error, which occurs when respondents provide inaccurate answers to survey questions, has also been suggested as a source of differences between telephone and mail survey estimates in previous MRIP pilot studies (Brick et al. 2012, Andrews et al.2013). Measurement error occurs when survey respondents misinterpret survey questions, fail to recall past events or behaviors, or knowingly misreport.

We submitted an MRIP proposal in 2014 to examine measurement error in recreational fishing mail surveys (Testing for Measurement Error in a Recreational Fishing Mail Survey). The project initially consisted of two components, 1) completing follow-up telephone interviews with survey respondents to validate information reported in the mail survey (Validation Study), and 2) conducting a pilot study to measure the impact of recall period on reported fishing activity (Recall Study). The Validation study was implemented in 2014 and will be completed over the course of the next few months. The Recall Study was postponed because we could not secure the necessary approvals (e.g., Office of Management and Budget) in time to implement the study. These changes were described in the final MDMS project plan. We are now proposing to implement the Recall Study in 2015.

1.2. Project Description

This project will assess measurement error in recreational fishing mail surveys by measuring the impact of recall period on reported fishing activity. The Fishing Effort Survey (FES) is a self-administered mail survey that collects recreational fishing effort data from samples of residential addresses. The survey, which will be conducted in Atlantic in Gulf coast states in 2015, asks household residents to report recreational fishing activity that occurred during a two-month reference wave. The sampling and data collection designs for the Recall Study will be nearly identical to the FES. However, the reference period will be reduced to one month – respondents will be asked to report fishing activity that occurred during a one-month reference wave. It's well documented that the risk for recall bias increases as the recall period increases (Neter and Waksberg 1964, Chu et al., 1991). We will assess recall error in the FES by comparing FES estimates to Recall Study estimates that have been aggregated to coincide with FES waves (e.g. we will compare one two-month FES estimate to the sum of two one-month Recall Study estimates). Differences between FES and Recall Study estimates can be attributed to differential recall error between the two reference periods and will be an indication that FES estimates are susceptible recall bias. In addition to assessing the potential for recall error in the FES, the Recall Study will examine the impact of one month waves on the precision and timeliness of recreational fishing effort estimates.

This pilot study will support the further development and improvement of alternative designs for collecting recreational fishing effort data, which has been a top MRIP priority for the past several years. We anticipate that the results of the study will help identify and quantify potential sources of survey error in the mail survey design.

1.3. Objectives

1. Assess the potential for bias resulting from measurement error in the MRIP Fishing Effort Survey.
2. Assess the impact of one month reference waves on the precision and timeliness of recreational fishing effort estimates.

1.4. References

Andrews, W.R., J.M. Brick, N.M. Mathiowetz, and L. Stokes. 2010. Pilot test of a dual frame two-phase mail survey of anglers in North Carolina. Retrieved from https://www.st.nmfs.noaa.gov/mdms/public/finalReport.jsp?ReportID=355 Brick. J.M., W.R. Andrews, and N.M. Mathiowetz. 2012. A Comparison of recreational fishing effort survey designs. Retrieved from https://www.st.nmfs.noaa.gov/mdms/doc/08A_Comparison_of_Fishing_Effort_Surveys_Report_FINAL.pdf. Andrews, W.R., J.M. Brick, and N.A. Mathiowetz. 2013. Continued development and testing of dual-frame surveys of fishing effort: testing a dual-frame, mixed-mode survey design.

Retrieved from https://www.st.nmfs.noaa.gov/mdms/public/finalReport.jsp?ReportID=831.
Andrews, W.R., J.M. Brick and N.A. Mathiowetz. 2014. Development and testing of recreational fishing effort surveys: Testing a mail survey design. In Review. Neter, J. and J. Waksberg. 1964. A study of response errors in expenditures data from household interviews. Journal of American Statistical Association, 59: 18-55.

2. Methodology

2.1. Methodology

The Recall Study will be conducted in four states and will overlap with the MRIP Fishing Effort Survey (FES) for a period of six months (three FES waves). Data collection periods and locations will be selected to cover high and low activity states and months. The design of the recall study will be nearly identical to that of the FES. For each state and reference month, a sample of 1,000 residential addresses will be selected from a comprehensive addresses frame maintained by the United States Postal Service. Sampled addresses will be augmented by matching the addresses to a state database of licensed saltwater anglers. This matching screens the sample prior to data collection and allows households with and without anglers to be sampled at different rates. The final sampling allocation is achieved by retaining all matched addresses in the sample and sub-sampling unmatched addresses at a rate of approximately 30%. Preliminary results from the FES suggest that this allocation is optimal in terms of maximizing the sampling efficiency.

Saltwater fishing activity, including zero-trip data, will be collected from all occupants of the sampled addresses though a self-administered mail survey design. The data collection period for each month will begin one week prior to the end of the month with an initial survey mailing that includes a cover letter stating the purpose of the survey, a survey questionnaire, a post-paid business reply envelope (BRE), and a prepaid cash incentive. The initial mailing will be followed by a thank you/reminder postcard one week following the initial mailing, and a follow-up mailing, including a second questionnaire, a nonresponse conversion letter, and a BRE, three weeks after the initial mailing.

Recreational fishing effort estimates generated through the Recall Study will be compared to FES estimates for the same time period. Differences in effort estimates between the studies will be an indication that the different recall periods result in differential recall error. We will also examine other sources of survey error, particularly nonresponse error, to ensure that comparisons are not confounded. In addition, we will compare the precision of Recall Study and FES estimates to document the impact of recall period (i.e. temporal stratification) on precision.

2.2. Regions

Gulf of Mexico, Mid-Atlantic, North Atlantic, South Atlantic

2.3. Geographic Coverage

2.4. Temporal Coverage

2.5. Frequency

2.6. Unit of Analysis

2.7. Collection Mode

3. Communications Plan

3.1. Internal

The project team, including ST1 and contractor staff (Gallup) will conduct bi-weekly conference calls to review project progress.

3.2. External

The project team will provide monthly updates via MDMS and submit a final project report describing project results. The project team will coordinate with the MRIP Communications and Education Team as necessary.

4. Assumptions and Constraints

4.1. New Data

Yes

4.2. Track Costs

Yes

4.3. Funding Vehicle

NMFS ST Contract

4.4. Data Resources

State angler license database delivered on a monthly schedule.

4.5. Other Resources

4.6. Regulations

4.7. Other

5. Risk

5.1. Project Risk

Table 1: Project Risk

Risk Description	Risk Impact	Risk Probability	Risk Mitigation Approach
Updated state license databases unavailable.	Data collection becomes less efficient as will be more difficult to target sampling toward households with licensed anglers.	Medium	Conduct study in states that are most likely to provide updated license information.

6. Final Deliverables

6.1. Additional Reports

6.2. New Data Sets

6.3. New Systems

7. Project Leadership

7.1. Project Leader and Members

Table 2: Project Members

Project Role	Name	Organization	Title
Team Leader	Rob Andrews		
Team Member	Anjunell Lewis		
Team Member	Jun Rosetti		
Team Member	John Foster		
Team Member	Mike Brick		
Team Member	Nancy Mathiowetz		

8. Project Estimates

8.1. Project Schedule

Table 3: Project Schedule - Major Tasks and Milestones

#	Schedule Description	Planned Start	Planned Finish	Prerequisites	Milestones
1	Finalize Recall Study Instrument	06/01/2015	06/01/2015		
2	OMB Approval for Data Collection	07/03/2015	07/03/2015		
3	Implement Data Collection	07/27/2015	03/28/2016		
4	Data Analysis and Estimation	08/28/2015	05/31/2016		
5	Submit Project Report	06/30/2016	06/30/2016		Y

8.2. Cost Estimates

Table 4: Cost EstimatesYes

Project Need	Cost Description	Date Needed	Estimated Cost
Data collection contract	24,000 mail surveys @ $9.04	03/31/2015	$216909.00
TOTAL			$216909.00