

SUPPORTING STATEMENT PART B

Social Network Analysis Mail Survey

OMB CONTROL NO. 0648-xxxx

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method used. Provide data on the number of entities (e.g., establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

The potential respondent universe includes resident anglers licensed to fish in all Atlantic Coast states and Gulf of Mexico states – excluding Louisiana and Texas. The sampling frame is the database of anglers with resident fishing saltwater fishing licenses in these states. Table 3 shows estimates of the number of resident anglers in each state, the sample sizes by state assuming an overall sample size of 10,000, and a calculation of expected number of completed, returned surveys assuming 45% response rate. The results of a Participation Time Series Query on the NMFS Recreational Fisheries Statistics Queries website¹ for 2016 (the most recent year available) was used to calculate the estimated number of resident anglers in each state. The estimated sample size in each state is based on the proportion of estimated state resident licensed anglers in the state to the estimated number of state resident licensed anglers for all states combined.

In 2016, NMFS estimated there were over 8 million resident marine recreational anglers in the study area states (i.e. Maine to Mississippi) shown in Table 3 (NMFS 2017).

Table 3. Estimates of the number of resident anglers in each state, the sample sizes by state assuming an overall sample size of 10,000, and a calculation of the number of expected number of completed, returned surveys assuming 45% response.

State	Estimate of Resident Anglers	Percent of Estimated Survey Area Resident Anglers in State	Estimated Number of Anglers Sampled	# of Responses: 45% Response Rate
Mississippi	239,318	3%	298	134
Alabama	450,584	6%	561	252

¹ <https://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-documentation/queries/index>

Florida²	2,451,458	31%	3,053	1,374
East Florida	1,058,766	13%	1,319	594
West Florida	1,392,692	18%	1,734	780
Georgia	198,345	2%	247	111
South Carolina	265,029	3%	330	149
North Carolina	822,682	10%	1,024	461
Virginia	480,037	6%	598	269
Maryland	474,384	6%	591	266
Delaware	103,691	1%	129	58
New Jersey	538,466	7%	671	302
New York	808,544	10%	1,007	453
Connecticut	296,822	4%	370	167
Rhode Island	148,766	2%	185	83
Massachusetts	548,277	7%	683	307
New Hampshire	77,508	1%	97	44
Maine	126,394	2%	156	70
Totals	8,030,305	100%	10,000	4,500

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

The SNAMS is a single-phase, self-administered mail survey and data collection procedures have been proven through previous MRIP studies (Andrews et al. 2010, Brick et al. 2012a). The data collection period begins with an advance (pre-notification) letter followed five days later by an initial survey mailing. The initial survey mailing is delivered by regular first class mail and includes a cover letter stating the purpose of the survey, a survey questionnaire, a post-paid return envelope and a prepaid cash incentive (as described in section A.9).

One week following the initial mailing, a follow-up thank you/reminder contact is initiated. Three weeks after the initial survey mailing, a follow-up survey mailing is delivered to all sample units that have not responded to the survey. The follow-up mailing is delivered via first class mail and includes a nonresponse conversion letter, a second questionnaire and a post-paid return envelope. A final thank you/reminder will be sent two weeks later.

² Florida will be further stratified into east and west components. The objective of this further stratification of Florida anglers is to separate anglers into groups based on their council region with west coast anglers in the Gulf council region and east coast anglers in the South Atlantic council region. Florida anglers were subdivided into the two groups based on estimated angler participation by coast as outlined in Fisheries Economics of the United States 2016 (NMFS 2018). NMFS 2018 estimated that 57% of Florida marine recreational anglers fished Gulf waters while 43% fished Atlantic waters.

Anglers are stratified at the state level (Table 3) with analysis occurring at the council level³. Stratification at the state level is performed to accurately weigh state level participation for the council level analysis. Analysis at the council level as shown in Table 4 is similar to the approach used by Brinson and Wallmo in their 2013 survey of recreational anglers' attitudes and perceptions. Given the estimated council level sample sizes and expected response rate (Table 4), the data collected should allow for estimate precisions of at most +/-5% sampling error (+/- 5% margin of error) which should be adequate for this project. The required number of responses for each council region assuming referendum style questions with estimated 50/50 population ratios (50% yes and 50% no) is 384 responses⁴ (Dillman et al. 2009). In addition, the estimated number of respondents at the council level should allow for the calculation of rather precise confidence intervals around point estimates.

Table 4. Anglers by Council Region and Potential Responses to 10,000 Angler Survey.

Council Region	% of Estimated Survey Population	# of Surveys Mailed	# of Responses: 45% Response Rate
Gulf	26%	2,593	1,167
South Atlantic	29%	2,920	1,314
Mid Atlantic	30%	2,995	1,348
New England	15%	1,492	671
Total	100%	10,000	4,500

3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

Recent MFES response rates (with a \$2.00 cash incentive included in the initial survey mailing) for licensed anglers from Maine to Mississippi average 45% (Personal Communication, Rob Andrews, NMFS). By using the proven tailored design method (Dillman, 2009) for survey

³ Florida is further stratified as noted in footnote 2.

⁴ Assuming 50/50 population ratios is conservative, as the ratio moves away from a 50/50 split the required number of responses falls; at an 80/20 split only 246 responses are needed for a +/- 5% sampling error at the council level. It is also worth noting that the required sample size increases dramatically as acceptable sampling error is decreased from +/- 5%; 1,307 responses would be required from each council region to achieve +/- 3% sampling error (assuming a 50/50 population ratio).

implementation and the \$2.00 incentive we are expecting a similar response rate of 45% on the SNAMS.

The expected response rates will be achieved by using standard mail survey protocols (Dillman et al, 2009). The data collection period begins with an advance (pre-notification) letter followed five days later by an initial survey mailing. The initial survey mailing is delivered by regular first class mail and includes a cover letter stating the purpose of the survey, a survey questionnaire, a business-reply (no postage required) return envelope and a prepaid cash incentive (as described in section A.9). On the MFES, a \$2.00 incentive was found to be optimal in terms of maximizing response and minimizing data collection costs.

One week following the initial mailing, a follow-up thank you/reminder contact is initiated. Three weeks after the initial survey mailing, a follow-up survey mailing is delivered to all sample units that have not responded to the survey. The follow-up mailing is delivered via first class mail and includes a nonresponse conversion letter, a second questionnaire and a post-paid return envelope. A final thank you/reminder will be sent two weeks later.

Respondents will be provided business reply envelopes (no postage necessary) so that they may easily return their completed questionnaires.

For each sample, we will utilize the inverse of the selection probability from the sample frame to define initial base weights. Post-survey weighting adjustments will be implemented to account for differential response rates at the management council region and state level. Nonresponse bias will be measured by comparing unadjusted estimates to estimates that have been adjusted to account for differential nonresponse among weighting classes. Demographic information that is included in the sample frame (e.g. age, license type) will also be evaluated for use in nonresponse adjustment. If nonresponse biases are detected, then standard methods described in statistical textbooks such as Cochran (1998) and Lohr (1977) will be employed.

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.

The survey was pretested at the University of Florida's Survey Research Center (SRC). Pretesting was led by the SRC Director, Dr. Michael Scicchitano. The pretesters include seven licensed saltwater recreational anglers. Four pretesters are men and three pretesters are women. The pretesters range in age from 27 to 66, with a diversity of educational backgrounds, and income categories from less than \$40,000 to \$200,000 or more. About half of the pretesters exclusively fish the Gulf of Mexico coast, and the others fish both the Atlantic Ocean and Gulf of Mexico coasts. The pretesters responded positively to the overall appearance and structure of the survey materials and indicated survey questions were easily understood. Their feedback was used to revise the correspondence and questionnaire and to ensure that the survey material is understood and interpreted by the respondent as intended.

Pretest feedback, including general comments on survey correspondence, questionnaire structure and design, as well as comments on specific questions, and responses to the feedback are summarized below.

General comments on survey correspondence, questionnaire structure and design:

- a) Pretesters reacted positively to the logos, fonts and use of color on the survey correspondence. One said: “I like the lettering. I think it’s very well done. I like the [bolded] blue. That pulls you to the center.” Another added: “I think the appearance is great. I actually think the bold part is catchy and helpful.”
- b) Pretesters wanted to know how they were selected for the survey. Basic information on how licensed anglers are randomly sampled was added to the letters and postcards, including “We are contacting a random sample of licensed anglers.” and “You are one of only a small number of licensed anglers that have been selected to help in this study”.
- c) All pretesters agreed that they liked the font, layout structure, and colors of the questionnaire. All questions were answered. None were left blank.
- d) The photos on the front cover page should portray diversity in angler age, gender, and race or ethnicity.
- e) Several pretesters conflated fishery management and enforcement. Fishery managers establish fishing regulations to adhere to scientifically established catch limits and are not fishery enforcement agents or natural resources police. “Fisheries managers” is now defined in the introduction of Section 2.
- f) The pretesters agreed the length (i.e. duration) of the survey was reasonable. On average, the pretest subjects took 11.6 minutes to complete the draft questionnaire, with a standard deviation of 3.4 minutes. The median completion time was 11 minutes. The person who completed the draft questionnaire in the shortest amount of time took 8 minutes, and the person who took the longest completed the questionnaire in 18 minutes. No questions are deemed redundant or unnecessary.

Comments on specific questions:

Question 2: Consider either providing definitions of “state” and “federal” waters, or adjusting the terminology to more common terms like “in/near-shore” and “off-shore.”
Response: The question is asked to determine if respondents know if they fish in state and/or federal waters. As an alternative, respondents may select “I am unsure whether I fish in state or federal waters” as an option.

Question 4: Consider either changing the response categories to “Yes/No” or adjusting the scale to measure frequency, such as in question 3.
Response: The question was changed to “There are many different reasons people choose to go saltwater recreational fishing. How important are each of the following reasons to you?” and the scale of responses was adjusted to measure importance as in Sutton (2007).

Question 6: Note that when the question format shifts to “Yes/No” responses, these are presented in the opposite direction of other response sections (which are “disagree” to “agree”).
Response: The orientation of “Yes/No” should not affect response rates or validity. The order of the response “Yes/No” is consistent with other Yes/No” response questions. Given the timeframe of the question (3 years), it is reasonable to expect respondents will be capable of answering the question “Yes” or “No”. All pretesters answered the question

without difficulty. The response category for “don’t know” was omitted.

Question 7: Consider defining “fishery manager,” and add a “don’t know” option.

Response: The introduction to Section 2 was revised to “In this section, we ask about your understanding and opinions on saltwater recreational fisheries management and data collection. Fisheries managers include representatives of NOAA Fisheries, state resource and fisheries agencies, and regional fishery management councils who establish fishing regulations to adhere to scientifically established catch limits — Fisheries managers are NOT law enforcement agents”.

There is no best practice to follow for including these additional response options when middle options (neither/nor) are offered on bipolar scales (Sturgis et al. 2014). The decision was made to omit a “don’t know” option.

Question 9: Emphasize the word “effectiveness”. Consider collapsing the question.

Response: The word “effectiveness” was underlined. The items were not collapsed so results will remain comparable with a similar study (Vaske 2007).

Questions 12 and 13: Remove “creel and intercept surveys” from the examples in the question. Split family and friends questions, and collapse “Recreational fishing organization meetings” to “Recreational fishing organization newsletters/emails/meetings“. Differentiate questions 12 and question 13.

Response: “creel and intercept surveys” was removed from question 12; “Family and friends” were split into two items, “Family members” and “Friends”; and “Recreational fishing organization newsletters/emails“ and “Recreational fishing organization meetings” were collapsed to “Recreational fishing organization newsletters/emails/meetings“.

“Saltwater fishing regulations and data collection issues” was underlined to differentiate question 13 from question 12.

Questions 16-22: Consider adding a note that the respondent does not have to answer any questions that they do not wish to answer –standard IRB language which may encourage completion of the remainder of the survey, even if some demographic questions are skipped. Note: consider adding a response option of “prefer not to answer” for these questions, so that respondents do not become so discouraged that they do not reply to the remainder of the questionnaire.

Response: “This survey is voluntary” is now stated in the 1st and 2nd survey package cover letters. The first sentence on the cover of the survey now states, “NOAA Fisheries is conducting this voluntary survey...”. In the description for Section 4, the words “strictly confidential” are highlighted for emphasis. We considered adding a response option of “prefer not to answer” for these questions but it was determined that the nature and order of the questions should not affect overall survey response rates. Respondents who prefer not to answer may leave the question blank. Due to concerns of encouraging item refusal, the “prefer not to answer” option was omitted from Section 4.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Statistical support was provided by the following:

Dr. Andrew Ropicki, Texas A&M University, 361-825-6210

Dr. Stuart Carlton, Purdue University, 765-494-3726

Adam Rettig, Survey Statistician, NOAA Fisheries Service, Office of Science and Technology,
301-427-8216 is the point-of-contact for the Agency.

References

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