SUPPORTING STATEMENT

SOCIOECONOMICS OF GUIDED WILDLIFE VIEWING OPERATIONS IN THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY

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 to be used. Data on the number of entities (e.g. establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided 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.

Commercial wildlife viewing passengers visiting the SBNMS comprise the respondent universe. After conversations with SBNMS site staff and a couple wildlife viewing operations, it has been determined that the screening surveys for passengers will be conducted on the boat rides back from wildlife viewing and not at the port as passengers exit the vessel. A sampling plan has been developed to survey across days of week, with a heavier sampling occurring on weekends. Further, the sampling will be across vessel operators. Those that offer more trips throughout the week will be sampled at higher rates. In the fall, estimates of use will be collected for each location from the operators. At this time, it might be necessary to weight the data by location to be representative use locations. There are two approaches that respondents will have.

1. Provide their e-mail and answer two demographic questions: age and gender. This information will be used to determine if there is non-response bias.
    a. Take a postcard with their respondent ID number and a weblink to Survey Monkey to complete the demographic, importance/satisfaction module and the expenditure module of the questionnaire.
    b. Take a postage-paid printed copy of demographic, importance/satisfaction module and the expenditure module of the questionnaire to mail back. The paper version would also include their ID number.

The table below summarizes each survey form component number of participants (completes) and the net expected response rates for each component. We expect a 94.6 percent net response rate of those eligible wildlife passengers for the on-board vessel survey. We require 1,000 screeners for each season. Using past experience, we expect roughly 40% response rate to the expenditure mailback and a 60% response rate for the satisfaction mailback. These response rates will yield sample sizes adequate for reliably estimating all items in the mailbacks.

There are two steps in calculating the expected net response rate in our survey of visitors using airport surveys. We will calculate the expected response rate at each step and the cumulative response rate across all three steps using AAPOR Response Rate 1, which is the minimal expected net response rate. We do two scenarios below given different ranges of assumptions.

AAPOR Response Rate 1 – Wildlife Passenger On-Site Surveys

Response Rate 1 = I/(I +P) + (R + NC + O) + (UH + UO)

Where
I = Interview
P = Partial Interview
R= Refusals
NC = No contact
O = Other
UH = Unknown household
UO = unknown other

Step 1: On-site interview on wildlife viewing vessels using the Tally Sheet to obtain some of the parameters of the AAPOR response rates.

2,000/[(2,000+13) + (100 + 0 + 0)] = **94.65%**

Although we have done surveys on wildlife viewing vessels, based upon similar on-site interviews at airports we assume 13 partial screener interviews (where people start but do not provide all necessary information on the screener to complete the mailback/online survey) (P) to get 2,000 completes.

We assume 100 refusals (R) per 2,000 completed interviews based on past experience at airports. Since this is the first time we are implementing a survey on a wildlife viewing vessels, we can only rely upon past experience where we have contacted people on-site to recruit them to conduct a longer survey.

NC, O, UH and UO are either irrelevant or assumed zero in our application.

Step 2: Mailbacks for the on-site wildlife viewing recruitment.

With the above assumptions for response rates for the two mailbacks, we have net response rates for the mailback of 47.3% (.9465 * .50).

Wildlife Viewing Survey Response Rates

On-Site Short Form (Screener			
	Number of Participants	2,000	Half the sample (1,000) will be administered in the

	Expected Response Rates	94.65%	summer season and the other half (1,000) will be administered in the spring/fall season
Mailback/On-Line Survey			
	Number of Participants	1,000	Half the sample (500) will be administered in the summer season and the other half (500) will be administered in the spring/fall season
	Expected Response Rates	47.3%	

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.

Methodology for Sample Selection

Teams of two will deployed to wildlife viewing vessels and tours. A sampling plan has been developed to survey across days of week, with a heavier sampling occurring on weekends. Further, the sampling will be across vessel operators. Those that offer more trips throughout the week will be sampled at higher rates. In the fall, estimates of use will be collected for each location from the operators. At this time, it might be necessary to weight the data by location to be representative. On the return trip, the vessel captain will announce the surveyor's presence on the boat and ask passengers to participate if they are approached. Surveyors will begin to approach respondents to conduct the short or long screener (respondent's choice). Each surveyor will start in a different location on the boat and ask respondents to answer the screener in the order that they see them. This means if 10 people are standing along the railing in a line, the surveyor will start with the person closest to them and move down the line asking each person, as time permits. Only one respondent from each group will be selected, and it will be first person over the age of 18 (or closest to the respondent) as they move down the line.

Since both the short and longer screener will ask some demographic questions, this data will be used to identify if there is any non-response bias between those who completed the screener and mailbacks/online surveys or those who completed the screener, but not the mailbacks/online surveys. If non-response bias is detected, then a combination of multivariate and multiplicative weights will be used. This usually requires some iteration since full multiplicative weights are generally not possible with sample sizes we will be obtaining.

Step 1: First we will run Kolmogorov – Smirnov Two-sample tests for differences in continuous factors for respondents versus non-respondents and Chi-square tests with Bonferroni adjustments for experiment-wide error. Second, we will run probit and logit equations on respondents versus non-respondents (1= respondent and 0=non-respondent). Explanatory variables come from the wildlife viewing on-site form including: age and gender. This will determine what factors might be related to non-response.

Step 2: Check to see if any of the variables related to non-response are related to various variables for estimation.

For the satisfaction mail back, we will run regressions on select importance and satisfaction rating as the dependent variable. Explanatory variables come from the wildlife viewing on-site form including: age and gender.

For the expenditure mail back, we will run regressions on selected expenditure aggregate expenditure categories (e.g. Lodging, food, transportation, boating, fishing, diving, sightseeing, service and total). Explanatory variables come from the wildlife viewing on-site form including: age, race and gender.

Step 1 only reveals if there is potential for non-response bias; it is a necessary not a sufficient condition for establishing the existence of non-response bias. Step 2 determines if any of the factors that are related to non-response are significant factors in explaining measurements obtained in the survey. If so, then sample weighting will be required. It is possible, but not certain, that multivariate weighting may be required. We won't know that until after we complete the survey and do the analyses.

Statistical Analysis

Data analysis will be geared toward understanding the demographics of our target population, their importance/satisfaction regarding wildlife viewing in SBNMS and their expenditures. Demographic profiles for the population will be summarized using basic univariate descriptive statistics. The importance/satisfaction will also be analyzed using statistical analysis and the expenditures will be developed into profiles by the summer and spring/fall season to estimate the economic contributions of wildlife viewing in the region. Their expenditure information will be used in IMPLAN to estimate jobs, value-added, output and income supported by research in each sanctuary. IMPLAN is an input – output model that requires knowing the expenditures within your study area. These expenditures are then inputted into the modelling software and jobs, income, value-added and GDP are calculated. This is a widely accepted software and is used within NOAA and other Federal Agencies.

Degree of Accuracy Needed for the Purpose Described in the Justification

If necessary, weights will be used in estimating sample means and standard errors of the means using the Statistical Software SAS with formulas adjusted for sample design issues of stratification and weighting following guidelines in (Kish 1995). To extrapolate from sample to population, the total person-days (Visits) estimate (from the operator's survey) will be used.

The general sampling methodology and estimation of the on-board vessel survey and follow-up mailback surveys has been tested several times in the Florida Keys (1995-96 and 2007-08). Sample sizes were selected for this application to ensure statistical accuracy at the 95% confidence level or plus or minus 5 percent at a minimum with many data elements expected to be estimated with less potential error since sample sizes exceed those necessary to achieve 95% confidence.

Unusual Problems Requiring Specialized Sampling Procedures

We do not anticipate any unusual problems that require specialized sampling procedures.

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.

The operators of the wildlife viewing tours will announce the presence of the interviewers on the ship and ask them to kindly cooperate. Further, the study is being administered by Emerson College using students and volunteers, possibly less intimidating than NOAA. Further, since most respondents will provide an e-mail we will be able to send them a reminder e-mail to complete the surveys online or via paper and mail them back. These actions should help to increase response rates. Additionally, if there is non-response bias, then weights will be used to address this issue.

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.

Many of the survey questions, those related to the economic data, in particular, and the research methods proposed for this collection have been repeatedly deployed in past information collections by NOAA. The only modifications made to the survey instrument for this collection have been to tailor the application to the SBNMS.

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.

NOAA Project Leads

Dr. Danielle Schwarzmann was the primary advisor on the statistical aspects of the study design in consultation with Dr. Leeworthy, Chief Economist, with the Office of National Marine Sanctuaries. They are both experts in this area of research and application.

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Sources:

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