

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.

We estimate the population of commercial whale watching and marine wildlife observation operations in the relevant portions of the Stellwagen Bank Study Area to number 12 or fewer. This information was obtained through consultation with SBNMS sanctuary. These businesses will serve as the starting point for identification of relevant businesses. To ensure that the entire population of whale and wildlife viewing operations are included, researchers will also ask for referrals to other businesses from respondents and project partners in the region. However, based upon consultation with the staff and internet searches we do not expect any additional referrals.

Although we will contact the business owner to conduct the survey, it is possible that they do not keep the log books or directly monitor the number of passengers themselves. Because of this, the business owner will determine if a different employee is better capable to complete specific portions of the survey. This person may be the business owner, manager and/or captain. Because the number of whale and marine wildlife watching operations is somewhat low in the Stellwagen Bank study region, we have opted to complete a census of these operations. During a previous application of this survey method in other study areas; Channel Islands National Marine Sanctuary (CINMS) in 1999, researchers achieved a 100% response rate from recreation operators. A more recent survey of operators completed in 2015 by the Bren School received a 78% response rate among operators, but these were all the relatively large operations accounting for most of the use. In follow-up calls to non-respondents, it was determined that the non-responding operations did very little business in our study area. In the most recent application of this survey methodology for the Flower Garden Banks National Marine Sanctuary in Texas, a 100% response rate was also achieved. Thus, we also expect an 85% to 100% response rate in the Stellwagen Bank study.

The table below summarizes each survey form component number of participants (completes) and the net expected response rates for each component. A high response rate is expected. The site staff has had conversations with the whale watching SBNMS Sanctuary Advisory Board representatives and several operators about this survey. They seemed interested and willing to participate.

Whale and Marine Wildlife Operations	Sample Size (Population Census)	Expected Response Rate
12	12	85% to 100%

We will calculate the expected response rate using AAPOR Response Rate 1, which is the minimal expected net response rate. We use past experience in other sanctuaries as the basis for our assumptions.

AAPOR Response Rate 1 –

$$\text{Response Rate 1} = I / (I + P) + (R + NC + O) + (UH + UO)$$

Where

I = Interview

P = Partial Interview

R = Refusals

NC = No contact

O = Other

UH = Unknown household

UO = unknown other

Estimate Response Rate for Operators.

$$12 / [(12) + (0 + 0 + 0)] = 100\% \text{ or } 12 \text{ surveys completed in Stellwagen Bank NMS.}$$

We do not expect any partial interviews (P=0).

We assume 0 refusals (R) per 12 completed interviews based on past experience with operators.

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

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.

Statistical Analysis

Data analysis will be geared toward understanding the attributes of our target population, their cost and earnings, as well as the spatial distribution of where they take customers to view whales or other marine wildlife. Attribute profiles for the population will be summarized using basic univariate descriptive statistics. Finally, the mapped data will be visualized by converting data into points or polygons. This data will help to generate heat maps of use and will help to inform management about where the largest level of whale watching are occurring and to identify if there are any potential conflicts among user groups that might arise in these areas. An example of map data in a heat map is below. The size cells for reporting use data are larger than the image below they are 1minute x 1minute or about 1 square mile. The size is equivalent to 484 football fields and this is the level at which use data will be aggregated to present on a map.

Degree of Accuracy Needed for the Purpose Described in the Justification

As we expect to obtain a census, the statistics will have no sampling error. Therefore, the issue of degree of accuracy is not applicable.

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.

We anticipate a 100% response rate of the target population, based on past applications of the same methods of information collections by other National Marine Sanctuaries. Further, in the past, researchers have had no item non-response, even for income questions. However, to ensure 100% participation, researchers plan to issue letters and the survey to each respondent operator explaining the purpose of the project, the type of information needed, and why the information is needed in advance of the in-person interview. These letters will be followed by telephone contact from a member of the data collection team. The team members will call the respondent to answer any questions the respondent might have, as well as to schedule the interview and provide guidance on the type of documents needed during the collection. We anticipate that this population, meaning whale and marine wildlife watching operations, will be highly motivated and eager to participate in this study. The socio-economic information expected to be gathered from this study was last collected in 2009 by IFAW and did not include all of the types of information ONMS proposes to collect. Having this information will help inform SBNMS about how non-consumptive recreation businesses in the Sanctuary could be affected by any future regulations, and thus, we expect that these business operators will view their participation in the survey as a way to have their needs understood. Further,

this research and information will be used to support the development of their next Management Plan, giving operators a clear voice in the process.

Additionally, although ONMS is partially funding and supporting this research. Emerson College will be responsible for managing the data collection and providing a data set to sanctuaries without any PII. This should also help to increase response rates, since NOAA and ONMS will not have access to records with names or identification information. For the reasons described above, we do not expect non-response bias to be a significant issue for this collection.

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. This and similar cost and earnings studies are largely standard and, therefore, well tested. The only modifications made to the survey instrument for this collection have been to tailor the application to the SBNMS. These modifications, however, have been minor.

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:

O'Connor, S., Campbell, R., Cortez, H., & Knowles, T., 2009, *Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits*, a special report from the International Fund for Animal Welfare, Yarmouth MA, USA, prepared by Economists at Large.

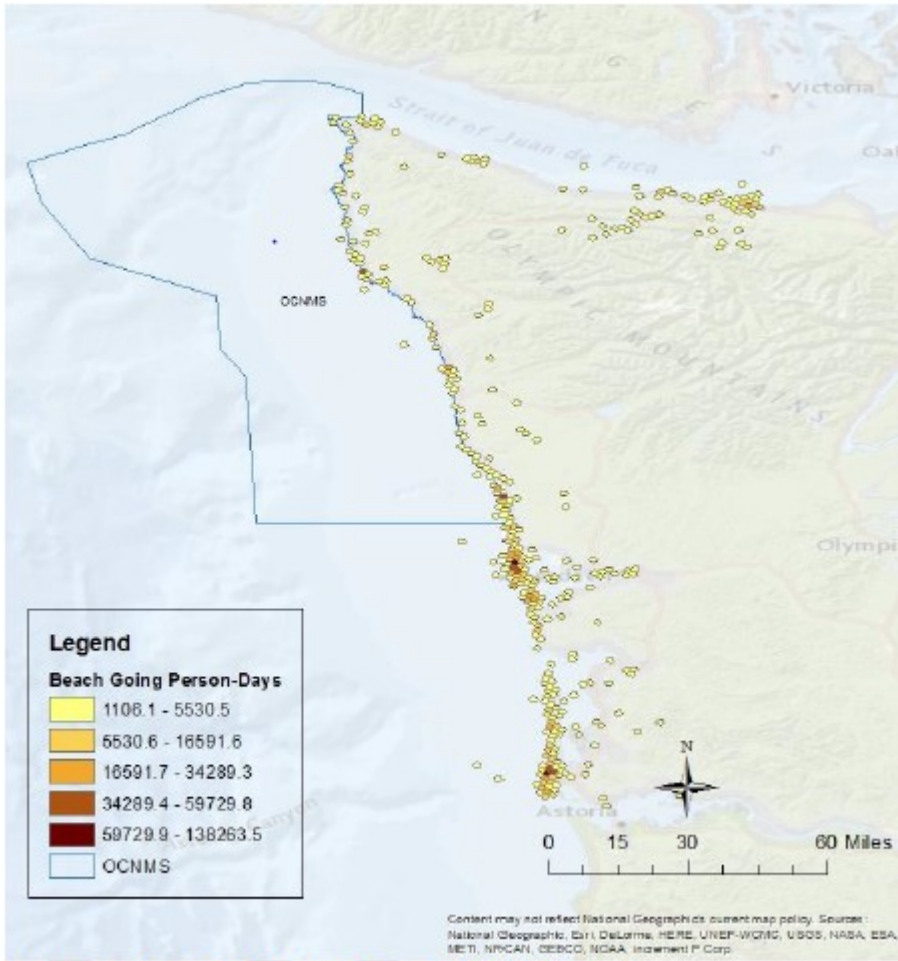


Figure 2.13 Hexagon Heat Map of Person-Days of Beach Going