

**SUPPORTING STATEMENT
ECONOMIC IMPACTS OF HAWAII REEF DIVING AND SNORKELING
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.

The respondent universe that this survey will target includes Hawaiian residents who have taken a dive or snorkel trip to Hawaiian coral reefs during the past 12 months. In addition, the survey will also target visitors to Hawaii who have taken a dive or snorkel trip during their visit. As described in Part A, we will employ two sampling strategies to target each audience: we will mail a 1-page flyer briefly explaining the objectives of the survey and the importance of participating to a random sample of 10,000 Hawaiian residents, sampled proportionally from all islands excluding Lanai and Molokai. The flyer will contain a QR code as well as a URL to the online survey instrument, where respondents can complete the survey.

In addition, we will provide flyers to local dive and snorkel trip operators as well as local marine parks, including Hanama Bay, to distribute to their patrons so that they can participate in the survey. Flyers will contain a distinct QR code and URL so that data collected from the opportunistic sample can be analyzed separately from the data collected via the systematic random sample. We have enlisted the help of a number of tour operators and a prominent marine park, Hanama Bay, where the primary park feature is a coral reef for snorkeling.

ENTITIES IN THE RESPONDENT UNIVERSE

Entities	Description of Sampling		
Resident Households	Total existing number*	Number sampled	Expected response rate
Oahu residents	992,605	6,949	35%
Kaui residents	72,029	504	35%
Maui residents	165,386	1,158	35%
Hawaii residents	198,449	1,389	35%
TOTAL	1,428,469	10,000	3,500
	Number of fliers distributed	Expected number of completes	
Dive/Snorkel Operators Approx. 15 tour operators have agreed to help distribute fliers	1,000	300	
Marine Parks/State or Local Parks Hanama Bay has agreed to help distribute fliers	1,000	350	
TOTAL	2,000	650	
TOTAL NUMBER OF COMPLETED SURVEYS		4,150	

*As reported by the US Census Data, April 2016

Based on previous experience using an opportunistic sampling strategy (the economic expenses of diving and snorkeling on South Florida reefs OMB Control No. 0648-0746) we expect to receive approximately 650 responses from the opportunistic sample, which targets non-residents who are visiting Hawaii. While we received over 2,400 responses for the South Florida survey using an opportunistic sample, we are not utilizing the same number of outreach avenues for the current survey – we plan to rely on primarily tour operators that offer diving and snorkeling and local marine parks (e.g. state or local beach parks, including Hanama Bay, where snorkeling is the prevalent activity) to reach non-resident Hawaiians who engaged in diving or snorkeling during the last 12 months.

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.

As described above, in order to reach the target populations we will survey a random sample of resident Hawaiians and use an opportunistic sample to survey non-resident Hawaiians who have engaged in diving or snorkeling on Hawaii’s reefs during the last 12 months. The entities described in the table above will assist us in distributing a flyer containing a URL and QR code for the online survey. There will be no a-priori stratification of the non-resident sample; however, post stratification of the data may be possible based on survey responses (e.g., frequency of dives, demographic characteristics).

We will survey a proportional random sample of Hawaiian residents on all islands except Molokai and Lanai. We will purchase an address-based sample of 10,000 addresses (sampled proportionally to the populations from each island) from Marketing Systems Group, and will mail potential respondents a 1-page flyer briefly explaining the objectives of the survey and the

importance of participating. The flyer will contain a QR code as well as a URL to the online survey instrument, where respondents can complete the survey. This sampling strategy will maintain fundamental statistical properties associated with random sampling.

We will analyze the data from the random sample of households and the opportunistic sample separately. We will estimate IMPLAN models from each dataset to estimate the economic impacts of diving and snorkeling on Hawaii's reefs. We will use SAS software to compute standard statistical measures for each question, e.g. mean, standard deviation, frequency counts, etc

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 have taken steps to maximize the number of surveys completed, including making the survey a brief, concise, and clear instrument, limiting the number of open-ended questions, tailoring questions by using skip patterns in the online instrument, and revising the survey based on feedback from a focus group conducted in Hawaii. In addition we have involved the use of a number of professional dive and snorkel operators, and education and outreach coordinators from Hanama Bay, to alert their patrons to the importance of completing the survey.

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.

Prior to the survey implementation, NOAA Fisheries conducted a focus group with 8 scuba divers and snorkelers in Honolulu, HI. Their feedback was used to revise language and questions in the survey and to ensure that material is understood and interpreted by the respondent as intended. For example, feedback from the focus group was used to modify the way the expenditure tables were presented to respondents. Prior to the focus group the expenditure tables contained all categories of expenses; however, focus groups revealed that many participants only had expenditures in one or two categories, and stopped writing a "0" in for expenditures for many of the categories, instead just leaving them blank. This is problematic as the analyst cannot determine whether they truly had zero expenditures on the item or just did not remember. To avoid this situation we revised the question to a two part question that allowed us to ask for expenditures only if the respondent said that they bought something in that category. This shortened the survey considerably.

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.

Design, Analysis, Report: Kristy Wallmo, NOAA Fisheries, 301-427-8190

Data collection: Gustavo Rubio, ECS Federal, contracting company, 301-427-8180.