

SUPPORTING STATEMENT
U.S. Department of Commerce
National Oceanic & Atmospheric Administration
Economic Impacts of Reef Diving and Snorkeling
OMB Control No. 0648-0765

Abstract

This request is for revision and extension of a currently approved information collection. The objective of the survey will be to understand divers' and snorkelers' expenditures associated with recreational coral reef diving activities in Hawaii and other coral reefs in the U.S. and U.S. territories (American Samoa, CNMI, Guam, and the Caribbean). The survey was previously implemented in Hawaii in 2019 and this revision proposes to make the survey national in scope. The name of the collection will be revised to Economic Impacts of Reef Diving and Snorkeling, from Economic Impacts of Hawaii Reef Diving and Snorkeling. The survey will also collect information on divers' attitudes, preferences, and concerns about recreational diving and coral reef health. This survey will help to improve our understanding of divers and snorkelers expenditure patterns and to estimate the economic impact of coral reef related spending. Results of the survey will be used to inform coastal resource management planning and establish a baseline for outreach and education. The expenditure survey is also expected to provide useful information for local economic and business interests.

Justification

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

Understanding the economic impacts of coral reef diving and snorkeling has been a top priority for the coral reef managers of the NOAA Coral Reef Conservation Program for several years. In addition, an improved understanding of divers' and snorkelers' economic impacts and expenditure patterns in Hawaii and other coral reefs in U.S. territories has utility for local businesses and state and local governments for planning, research, and operational purposes. While a number of studies have examined the ecological impacts of tourism, including diving and snorkeling, on coral reefs in Hawaii and elsewhere, the economic impacts generated via consumer spending receive comparably limited attention. This project will provide an estimate of the economic impacts derived specifically from diving and snorkeling on Hawaii's reefs and reefs in the U.S. territories. The project supports the purpose, goals, and objectives of the [Coral Reef Conservation Act](#) (2000), and results of the survey can be used to inform coastal resource management planning, to help establish a baseline for outreach and education, and to provide local communities with important economic information related to recreation on coral reefs. For example, estimates of the scale of economic impacts generated from Hawaii's coral reefs due to diving and snorkeling via other potentially competing uses can be used by state and federal managers to determine how best to manage access to the resource among different user groups (e.g. snorkelers, divers, fisherman, boaters) or to choose between alternative management measures that provide varying levels of benefits to different user groups. Further, questions on the survey related to preferences over coral reef attributes will be used by the Pacific Islands Fisheries Science Center in their Atlantis ecosystem model for coral reefs in the Hawaiian Islands to predict how changes in the biological attributes of the reef influence the number of snorkeling and diving trips and therefore, economic impacts.

The survey will collect coral reef related expenditure information directly from the coral reef user community with a specific focus on scuba divers and snorkelers. Economic impacts will be calculated utilizing the expenditure data collected through the surveys. Economic impact models developed by NMFS economists (and compatible with IMPLAN software) will be used to estimate the impacts of diving and snorkeling on coral reefs on the economy.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

The information and economic impacts generated from the survey data will be useful for Federal, state, and local management entities interested in the economic impacts of the use of coral reefs. These entities may use the information to examine the consequences of projects, policies, or regulations that may affect reefs – favorably or adversely. In addition, the estimates will be able to feed into other systems and/or coupled models such as those being developed by scientists at the Joint Institute for Marine and Atmospheric Research at the University of Hawaii. The use of economic data in these coupled models will improve their utility for forecasting, planning and management purposes. The economic estimates generated from the survey will be published and also available to anyone requesting the information.

The survey will collect data about the respondent's last dive or snorkel trip, their motivations for diving and snorkeling, and limited demographic information. The information will be collected from individuals who participated in diving or snorkeling on a coral reef in the Hawaii or other reefs in the U.S./territories during the last 12 months. The description of each question is below. **The instrument will remain identical for all geographic areas surveyed with the exception inserting the correct geographic location into each question.**

Q1 – Q2: screening question to determine if the respondent is a resident or non-resident and if they are eligible to complete the survey - i.e. have they taken a dive or snorkel trip to a U.S. reef during the last 12 months.

Q3: establish estimates of diving and snorkeling effort by location.

Q4 – Q6: examine motivations for snorkeling and diving and how reef conditions may change effort.

Q7: Questions that will determine which expenditure categories for durable goods the respondent will see on the following screen. If respondent checks box in this question then it will populate in the table in the following question asking about specific expenditures.

Q8: Questions that ask about actual expenditures on durable goods. Only those categories ticked in the preceding question will show up in the table for this question.

Q9 – Q12: these questions will determine which version of the survey the respondent will see related to expenditure categories. There is not a lot of difference but, for example, if the respondent's last trip was from shore, then the following screen would not include a category for expense related to cost of the boat rental or cost of the charter trip. Similarly, if the most recent trip was not part of a longer vacation, the respondent will not see expense categories for airfare.

Q13: Questions that ask about expense categories for the respondent's most recent trip. Only the categories ticked in this question will show up in the following table for actual expenditures.

Q14: Questions that ask about actual expenditures on most recent trip. Only those categories ticked in the preceding question will show up in the table for this question.

Q15 – Q17: very minimal demographic questions.

Q18: track the source of outreach

The information will be collected using an online survey.

In addition, we will prepare at least one paper for peer-reviewed publication that describes the outcomes of this survey. The primary research question to be answered in the paper will be estimates of average trip expenditures for divers and snorkelers and economic impacts stemming from those expenditures to the state of Hawaii, and by island/county. A second paper related to the perceptions and preferences over different coral reef attributes would also be feasible, and/or a paper which integrates these into the Atlantis model for Hawaii's coral reef ecosystems. Prior to dissemination, the information will be subjected to quality control measures and a pre-dissemination review pursuant to [Section 515 of Public Law 106-554](#).

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g. permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also, describe any consideration of using information technology to reduce burden.

The data will be collected via a voluntary survey that respondents will take online. Respondents will be able to use a computer, tablet, or phone to complete the survey, and a QR code will allow quick access to the survey via cell phones. The survey will be programmed to include prompts and skip patterns that are not viable using a mail survey. This will allow questions to be targeted specifically to the types of expenses a respondent incurred, and will prevent asking questions that are irrelevant for the respondent.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Question 2

Working with collaborators at the Pacific Islands Fisheries Science Center, collaborators at the Joint Institute for Marine and Atmospheric Research at the University of Hawaii, and several local dive shops in Hawaii, we ascertained that the information this survey will collect does not exist in an updated form, and there was no identification of ongoing efforts to produce the information. A literature review found several citations in educational and outreach materials referencing the economic impacts of Hawaii's coral reefs; however, these citations were all based on work published in 2004, and are not specific to the economic impacts associated only with diving and snorkeling. Additionally, a number of economic valuation studies have been conducted for one or more coral reefs in Hawaii, the most recent being 2013; however, these studies do not collect expenditure information and therefore cannot be used to estimate the direct and indirect economic impacts generated from diving and snorkeling. We have not found any citations for expenditure information related specifically to diving and snorkeling on coral reefs in the U.S. territories.

5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.

This collection does not impact small businesses or entities.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

Information produced from a previous economic impact study (2004) has been useful for conservation budgeting and planning in the state of Hawaii and have benefitted commercial entities dependent on coral reef resources. However, continuing to use what is becoming outdated data from 2004 can result in biased and/or inaccurate economic impact estimates and may impact budget allocations, environmental mitigation and research support for coral reef management. In addition, without new data on the economic impacts of coral reef diving and snorkeling, natural resource management agencies cannot make fully informed decisions about resource allocation related to coral reef conservation.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner inconsistent with OMB guidelines.

This collection will be conducted in a manner that is consistent with OMB guidelines.

In addition to a random sample of Hawaiian residents, we will provide flyers to local dive and snorkel trip operators as well as local marine parks in Hawaii and the U.S. territories to distribute to their patrons so that visitors to the reefs 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. While this sampling strategy is opportunistic, and therefore does not maintain statistical properties of a random sample, there is currently no existing sample frame of divers and snorkelers to coral reefs in the U.S. and territories, and thus an opportunistic sampling approach must be used.

8. If applicable, provide a copy and identify the date and page number of publications in the Federal Register of the agency's notice, required by 5 CFR 1320.8 (d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.

A Federal Register Notice published on January 19, 2021 (86 FR 5142) solicited public comments. No comments were received.

NMFS 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.

9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

Respondents will not receive a payment or gift.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy. If the collection requires a systems of records

notice (SORN) or privacy impact assessment (PIA), those should be cited and described here.

The survey instrument will clearly state that all data collected is anonymous and will not be released for public use except in aggregate statistical form. Further, the survey is electronic and does not require the respondent to fill out their name or any other identifying information.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior or attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

This collection does not involve questions of a sensitive nature.

12. Provide estimates of the hour burden of the collection of information.

The annualized cost of respondent burden hours for this collection is \$40,557. The collection will survey 3,500 individuals who have taken a coral reef dive or snorkel trip during the past 12 months, and the estimated time to complete the survey is approximately 25 minutes, on average. We are mailing postcards to Hawaiian residents to complete the survey and expecting to target other coral reef visitors using tour operators and local marine parks, therefore we have used two separate wage rates to calculate the cost of burden hours. For Hawaiian residents we use a statewide average for all occupations and for visitors to coral reefs in Hawaii and U.S. territories we use a national average for all occupations, as respondents are likely to work in a wide variety of occupations. The wage rate used for visitors is the national average for all occupations, \$27.07. The wage rate used for Hawaii residents is the statewide average for all occupations, 27.98. Both wage rates are obtained from the **BLS's Occupational Outlook Handbook** <https://www.bls.gov/bls/blswage.htm>

Information Collection	Type of Respondent (e.g., Occupational Title)	# of Respondents/year (a)	Annual # of Responses / Respondent (b)	Total # of Annual Responses (c) = (a) x (b)	Burden Hrs / Response (d)	Total Annual Burden Hrs (e) = (c) x (d)	Hourly Wage Rate (for Type of Respondent) (f)	Total Annual Wage Burden Costs (g) = (e) x (f)
Hawaii Residents Dive and Snorkel Expenditure Survey	Hawaii resident who has taken a dive or snorkel trip in last 12 months	1,500	1	1,500	0.42	625	\$27.98	\$17,487.75
Non-Residents Dive and Snorkel Expenditure Survey	Visitor who has taken a coral dive or snorkel trip in last 12 months to a reef in Hawaii or U.S. territories	2,000	1	2,000	0.42	833	\$27.07	\$22,549.31
Totals				3500		1458		\$40,037.06

13. Provide an estimate for the total annual cost burden to respondents or record keepers resulting from the collection of information. (Do not include the cost of any hour burden already reflected on the burden worksheet).

There are no capital costs or operating and maintenance costs associated with this information collection.

14. Provide estimates of annualized cost to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information.

Cost Descriptions	Grade/Step	Loaded Salary /Cost	% of Effort	Fringe (if Applicable)	Total Cost to Government
Federal Oversight	ZP IV	\$149,612	1		\$1,496
Other Federal Positions					
Data and analysis	ZP IV	\$149,612	10		\$14,961
Contractor Cost					
Printing and mailing postcards with QR code to households					\$3,000
Printing postcards with QR code for distribution by tour operators and marine parks					\$6,000
Programming and maintain online survey and survey responses					\$6,500
Total Cost					\$31,957

15. Explain the reasons for any program changes or adjustments reported in ROCIS.

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Information Collection	Respondents		Responses		Burden Hours		Reason for change or adjustment
	Current Renewal / Revision	Previous Renewal / Revision	Current Renewal / Revision	Previous Renewal / Revision	Current Renewal / Revision	Previous Renewal / Revision	
Reef Diving and Snorkeling Expenses Survey	3500	4,150	3500	4,150	1458	692	The revision and extension will target fewer Hawaiian households and increase the number of flyers distributed by tour operators, marine park staff, and other entities engaged in outreach. The time per respondent has also increased from 10 minutes per survey to 25 minutes per survey since additional questions were added.
Total for Collection	3,500	4,150	3,500	4,150	1,458	692	
Difference	-650		-650		766		

Information Collection	Labor Costs		Miscellaneous Costs		Reason for change or adjustment
	Current	Previous	Current	Previous	
Reef Diving and Snorkeling Expenses Survey	\$40,037.06	NA	0	0	Labor costs not previously calculated
Total for Collection	\$40,037.06	NA	0	NA	
Difference	\$40,037.06		0		

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

All results will be entered in a database using standard quality assurance/quality control procedures in survey research. Economists from NOAA Fisheries will analyze the data using standard software (e.g., SAS and IMPLAN) and standard statistical procedures that are appropriate for survey data. The expected timeline for data entry, cleaning, and analysis is approximately 6 months.

Results from this collection may be used in scientific, management, technical or general informational publications, and would follow prescribed statistical tabulations and summary table formats. Data will be available to the general public on request in summary form only.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

The survey will display the OMB expiration date.

18. Explain each exception to the certification statement identified in "Certification for Paperwork Reduction Act Submissions."

The agency certifies compliance with [5 CFR 1320.9](#) and the related provisions of [5 CFR 1320.8\(b\)\(3\)](#).