

**SUPPORTING STATEMENT**  
**Economic Value of Puerto Rico’s Coral Reef Ecosystems for Recreation/Tourism**  
**OMB CONTROL NO. 0648-xxxx**

**A. JUSTIFICATION**

**1. Explain the circumstances that make the collection of information necessary.**

The National Oceanic and Atmospheric Administration (NOAA) is requesting approval for a new information collection in order to conduct pretests to help in designing full surveys of visitors and residents of Puerto Rico, on ecosystem services valuation.

NOAA’s National Ocean Service, Office of National Marine Sanctuaries and the United States (U.S). Environmental Protection Agency (EPA) has entered into an Interagency Agreement (IA) to estimate the market and nonmarket economic value of Puerto Rico’s coral reef ecosystem for recreation-tourism uses (submitted as a supplementary document). The goal of this collaboration is to complete an economic valuation (market and nonmarket) survey for four ecosystem services (tourism and recreation, fishing, shoreline protection, and natural products) to support development of a decision-support tool for the Guanica Bay Watershed Restoration Management Plan that can provide evaluations of different restoration strategies on the coral reef ecosystem services connected to the Guanica Bay Watershed. This data collection effort is focused on the recreation-tourism ecosystem service of the coral reef ecosystems of all of Puerto Rico with a special attention to the coral reef ecosystems connected to the Guanica Bay Watershed.

NOAA is authorized to undertake this effort under the [Coastal Zone Management Act](#) (CZMA), 16 USC 1456c, while EPA is authorized under the [Clean Water Act](#) Sec. 104 (b) (2).

NOAA plans to develop and implement surveys of both the resident population of Puerto Rico and the visitor population that use the coral reef ecosystems for recreation-tourism. The surveys will be designed to provide the necessary information to estimate the market and nonmarket economic use values of Puerto Rico’s coral reef ecosystems and how those values change with changes in the physical/natural attributes of the coral reef ecosystems.

***This application is for a pre-test approval to design the final survey with the final survey approval contingent on presentation of the final design for the non-market economic valuation. The final survey will be submitted as part of a non-substantive change request, as not major changes are expected.***

**2. Explain how, by whom, how frequently, and for what purpose the information will be used. If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with all applicable Information Quality Guidelines.**

**How and Purpose**

The information collection will include surveys of visitors to, and residents of, Puerto Rico in

separate samples focused on coral reef ecosystem recreation-tourist uses and economic values. The information will be used in a decision-support tool being developed by EPA and NOAA to support the Guanica Bay Watershed Restoration Management Plan; by Puerto Rico Tourism in assessing their visitor populations; Puerto Rico territorial planning agencies in assessing uses of Puerto Rico's coral reef ecosystems for recreation-tourism uses and impacts on their local economies; and local businesses in assessing the economic impacts of coral reef uses on their local economy and what is important to visitors and residents and how satisfied they are with different facilities and services. The territorial government and NOAA may also use the results in benefit-cost analyses of investments in coral reef ecosystem protection and restoration, and possibly in damage assessments.

This application has two steps: First, a pre-test is required to assist in designing the final full survey and then implementation of the full final survey. So we are submitting both the pre-test version of the survey and the full survey questionnaires and sample designs. We are asking for approval of the pre-test and approval of the full final survey with a change request based primarily on the dollar bid amounts to be applied to the non-market economic value choice questions.

A pre-test will first be conducted to help design the bid amounts in the non-market economic valuation of the coral reef attributes for recreation-tourism uses by residents and visitors to Puerto Rico. After the pre-test, the full surveys will provide information on uses of the coral reef ecosystems for five regions of Puerto Rico; economic spending and the associated impacts on sales/output, value-added, income and employment associated with the spending, including multiplier impacts; non-market economic use values and how those values change with changes in coral reef ecosystem attributes and user attributes; and importance-satisfaction ratings for 25 natural resource attributes, facilities and services.

This information collection was preceded by OMB approval to conduct focus groups (OMB Control No. 0648-0660, expiration: 02/29/2016) as a first step toward design of the full surveys of residents and visitors of Puerto Rico. The focus groups addressed the attributes of coral reef ecosystems that people may consider important, and the levels of the attributes to be valued. Attributes would include natural attributes such as water clarity/visibility, coral cover and diversity, and fish abundance and diversity. In addition, issues such as crowded conditions or number of other users that users (e.g. SCUBA divers, snorkelers, recreational fishers, and wildlife viewers) see while doing their activities on the reefs will be evaluated. Before the focus group application to OMB, NOAA had done a world-wide literature review of coral reef valuation and the attributes of coral reefs that recreational-tourism user's value and how those values change with changes in the levels of attributes. This information served as a starting point in focus groups to identify what attributes and the levels of attributes that would be important for Puerto Rico.

Two focus groups of six persons per group were completed for residents. For visitors, a different approach had to be used. Seven one-on-one interviews were conducted (See Attachment C: Focus Group Report for more detail). The University of Puerto Rico-Mayaguez conducted the focus groups. NOAA contracted with the University to conduct the focus groups, survey pre-test and implementation of the final surveys. The principal investigators from the University of Puerto Rico – Mayaguez are Assistant Professor Miguel del Pozo and Dr. Ruperto Chaparro, currently Director of Puerto Rico Sea Grant. Dr. Vernon R. (Bob) Leeworthy, ONMS Chief

Economist, took part in developing handout materials and attended the first focus group. All materials were provided in English and Spanish. For the focus groups, the group discussion leader, Miguel del Pozo, was conversant in both English and Spanish.

In each of the focus groups or on-on-one interviews, participants provided oral and written feedback based on descriptive materials (e.g. illustrations and written descriptions of coral reef attributes of Puerto Rico's reefs). Open discussions was conducted on what attributes of the coral reef ecosystems of Puerto Rico that people cared about to support their recreation-tourist activities. Then discussions were directed at the levels of each attribute that might change how they value coral reef ecosystems for their recreation-tourism activities. During the focus group process, the study team:

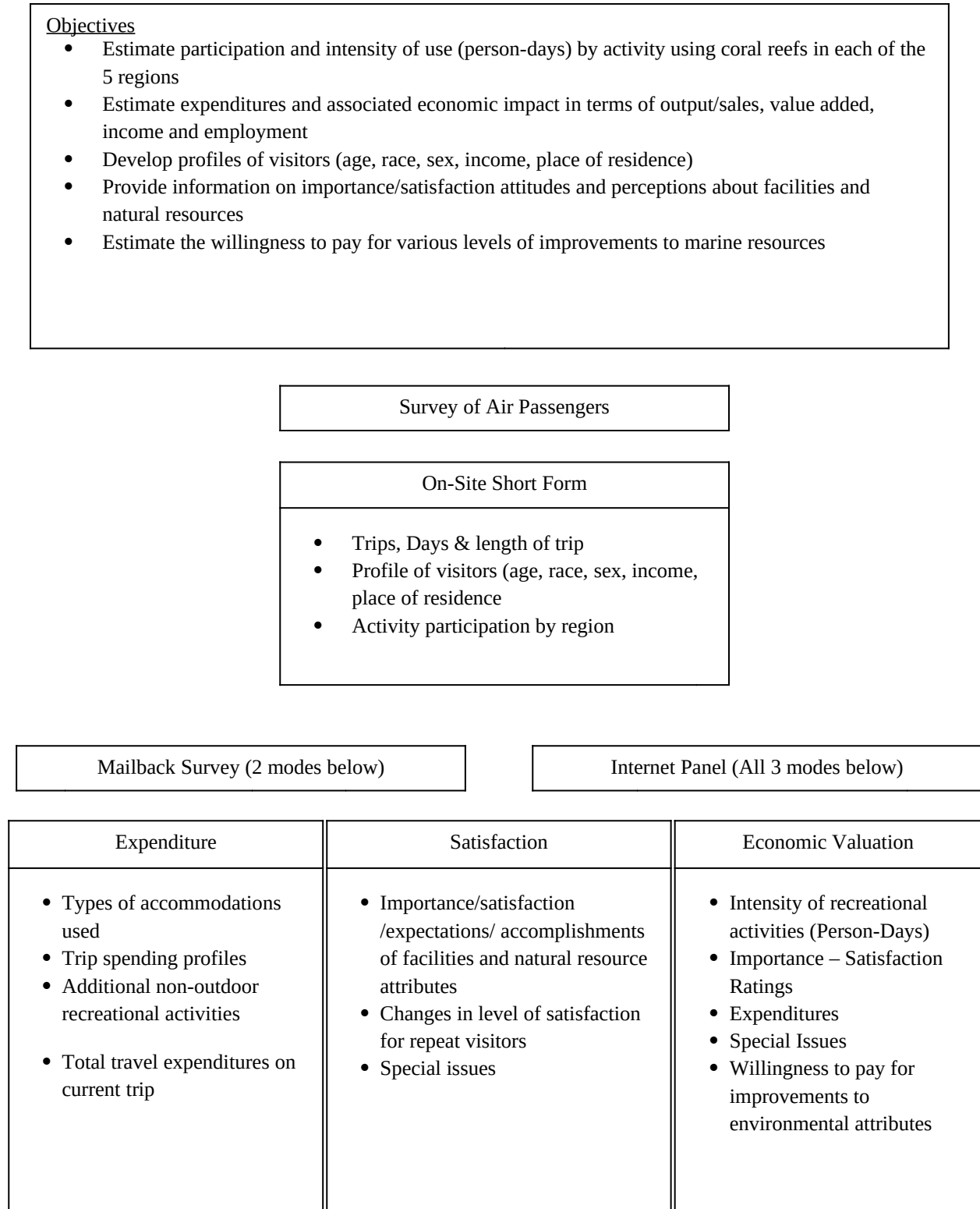
- Assessed what attributes of Puerto Rico's coral reef ecosystems people cared about to support their recreation-tourism activities.
- Assessed the levels of each attribute that might affect people's value of coral reef ecosystems to support their recreation-tourist activities.
- Learned how attributes and levels attributes of coral reef ecosystems are best presented in surveys (illustrations, pictures, videos and bulleted facts).
- Assessed Maximum willingness to pay for bundles of attributes moving from low to medium conditions for all attributes and from medium to high conditions for all attributes. The distributions of these values are used as starting points for designing the bids to be used in the pre-tests. Then based on the pre-test final bids will be designed.

It is important to note that focus group members were told we understood that revealing their maximum willingness to pay was not natural as people in real markets don't want to reveal their maximum willingness to pay, but instead are searching to find the minimum they have to pay and still obtain the good or service, while the supplier is trying to find out their maximum willingness to pay. Focus group members were asked to help us design the survey by revealing to us their maximum willingness to pay. All focus group members understood this and agreed to help us with providing their maximum willingness to pay. Appendix C includes a summary report of the focus group materials and findings.

## Visitor Survey

Figure 1 shows the sampling frameworks and corresponding questionnaires and issues addressed in each questionnaire or modules of questions in the Internet Panel.

Figure 1. Visitor's Survey



Visitors to Puerto Rico can assess the island by three modes of travel: airports, cruise ships, and some intermittent ferries (i.e. ferries that take people outside Puerto Rico, but historically these ferries don't always operate). The territorial government keeps data on the number of people leaving on flights (enplanements) by month, the number of cruise ship passengers by month, and the number of ferry passengers by month (see Part B for our sampling strategy and how samples are extrapolated to population estimates). Recent findings are that cruise ship passengers don't have time to engage in coral reef using activities while they are briefly in Puerto Rico, so it is most likely the population to survey will be limited to those on air planes leaving Puerto Rico.

**Tally Sheet:** At each airport that has flights leaving the island, people are first screened to determine if they qualify for the survey. The Tally Sheet contains eight columns: 1= Site of Interview; 2=Date of Interview; 3=Time Period of Interviews; 4=Permanent Resident; 5=Non Exit Visitor; 6=Non Reef Using Recreating Visitor; 7=Reef User Recreating Visitor, but Refusal or Language Barrier; and 8=Reef Using Recreational Visitor and completed Interview.

### **Process:**

At the lounges for gates of flights leaving Puerto Rico, interviewers select a row of seats and for the first row selected they select the first person in the row of seats occupied to interview, then select every third to fourth person depending on how many people are in the lounge area. and one a person has been selected they are asked "Are you a permanent resident of Puerto Rico? If yes, they are thanked and told we are only interviewing nonresidents of Puerto Rico and a tic mark is placed in column 4. If no, then the visitor is asked "Are you ending your trip to Puerto Rico today? If no, visitor is thanked and told we are only interviewing people at the end of their trip to Puerto Rico and a tic mark is placed in column 5. If yes, the interviewer hands the visitor the laminated "Blue Card", which has a list of activities done on coral reefs (i.e., our definition of coral reef use) and asked "Did you do any recreation/tourist activities on the coral reefs on this visit to Puerto Rico?" If no, the visitor is thanked and told we are only interviewing visitors that did recreation/tourist activities on coral reefs and then the interviewer places a tic mark in column 6. If yes, the visitor is asked "Will you participate in a short 5-10 minute interview about your visit to Puerto Rico?" If no, the visitor is thanked and the interviewer places a tic mark in column 7. If yes, the interviewer places a tic mark in column 8 and proceeds with the interview.

**On-site Short Form and Supporting Materials:** In addition to the short form questionnaire there are three sets of supporting materials to aid the respondent in answering the questions on the short form.

The supporting materials include the "Respondent Card or Green Card", which is a laminated card printed on green paper. It includes some background information on who is conducting the study and who is sponsoring the study. Required information on where to send comments or suggestions for reducing burden is included and the standard required statement about the Paperwork Reduction Act. Section 1: Primary Purpose of Trip to Puerto Rico contains the categorical responses for Question 10 of the short form. Section 2: Race contains the categorical responses to Question 13b of the short form. Section 3 Household Income Categories (Annual Income before taxes) contains the categorical responses to Question 14 of the short form.

The Activities List or "White Card" contains the list of detailed activities visitors can do while in Puerto Rico and coding numbers for Question 7 in the short form. Even though the list has been

modified for Puerto Rico, the coding adheres to the standards that we have been using for many years in working with the U.S. Forest Service in support of their responsibilities under the Resource Planning Act (RPA) to report to Congress on the supply and demand for outdoor recreation. The list of activities has been customized for Puerto Rico in response to local interests, so items such as weddings and Casinos, which are normally not included in outdoor recreation, are included here to meet local needs.

Maps of the five regions of Coastal Puerto Rico. In consultation with Puerto Rican planning and managing agencies, we determined that use information by five regions would meet their needs. So to aid respondents with answering Questions 8 and 9 on the short form about regional location of activity, we developed an overall map of Puerto Rico showing the five regions and individual maps of each of the five regions. The maps are color coded by region to aid respondents. These maps try to achieve a balance of giving people just enough information to help them determine which regions they did their activities without making the maps too busy to easily read. These maps were tested with the two focus groups of visitors. The maps will be laminated and handed to the respondents while they are being asked Questions 8 and 9.

### **Short Form**

This form is a short version of a questionnaire that has evolved over many applications at thousands of sites since the 1972 and 1977 Federal Estate Surveys, the Public Area Recreation Visitor Surveys (PARVS—1982 to 1991) and the most recent versions of CUSTOMER used by the U.S. Forest Service and NOAA since the early 1990s. This particular short form was used in the Florida Keys in 1995-96 and in 2007-08 and has been adapted to Puerto Rico.

At the top of the form the interviewer assigns a unique interviewer identification number. This number is extremely important because it provides a way of linking information across databases with different information from the same sample of respondents (e.g. on-site form data with Internet Panel data or mailback data).

In the next section, the mode of travel where the interview is taking place is recorded. For air, the airport is recorded. The month, day and time of the interview is also recorded here and the number of people in the traveling party.

Questions 1 (a) asks for the number of people in the party are age 16 or older, while Question 1 (b) asks for the number in the party under 16 years of age. This information is important for planning for facilities and services and for normalizing estimates of expenditures or economic value when put on a per person or per person per day basis.

Question 2 asks about primary place of residence. City or Nearest city, County, State and Zip Code for U.S. residents and City and Country for foreign visitors. This information is critical for assessing the sources of market demand for recreation/tourist activities in Puerto Rico and here, for the first time, coral reef users. The Puerto Rico Tourism Company, in their regular survey, asks this same information of all visitors so we will be able to test for differences between coral reef using visitors and the general visitor population.

Questions 3 thru 6 focuses on the length of stay and the number of times (trips) visited Puerto Rico and number of days visitors spend in Puerto Rico on the current trip and all trips in the last

12 months. This information is extremely important for understanding the total amount of use. Activity person-days of use most often involve double-counting across activities in a given day. Understanding the total amount of days on a given trip in Puerto Rico allows for normalizing person-days across activities to adjust for double-counting and provides critical information to planners in assessing the demand for infrastructure to support coral reef use.

Questions 7 thru 9 focus on group activity participation by region. The interviewer first hands the respondent the “Activities List – White Card” then asks Question 7, which asks the respondent in which activities did they or someone in their group participated in. The interviewer then records the activity number on each row. Question 8 then goes through each activity and asked if the respondent did the activity in each region. Question 9 then asks how many others in the group did the activity in each region. This way of recording information is designed for ease in administration in the field and has been used at 1,000s of sites around the country by multiple agencies. The burden is placed on the researcher to program the data out into estimates of use by activity.

Question 10 asks about the primary purpose of the trip to Puerto Rico. Respondent is handed the Respondent-Green Card and asked to refer to Section 1 for the categories of response. An “other” category is provided, but past experience suggests few will have another reason.

Questions 11 thru 14 include demographic profile questions; Question 11 ask for year born to derive age of the respondent; Question 12 codes Sex of the respondent (never asked). Question 13 asks if respondent is of Spanish, Hispanic or Latino ethnicity and is in compliance with OMB guidelines as is Question 13b on race. Question 14 asks about respondent’s annual household income last year before taxes. The Respondent-Green Card is used where the respondent responds to Questions 13 to 14 with letters corresponding to the category that best describes them.

The last page of the short form is where we recruit respondents into the Internet Panel, or if they don’t join the Internet Panel, ask them if they will fill out the mailbacks. The interviewer hands the respondent a brochure describing the sweepstakes/lottery and the gifts they could possibly win if they participate in the follow-up survey. For those who agree to be in the Internet Panel, e-mail address and phone number are obtained. Respondents are told that the University of Puerto Rico and NOAA will not share their information with anyone and once study is completed and prizes in sweepstakes/lottery are awarded any information identifying them will be destroyed.

If the respondent doesn’t want to join the Internet Panel, they are asked if they would complete two mailbacks: the expenditure and the satisfaction mailbacks. After two weeks, if mailbacks have not been returned, a post card reminder is sent. If the mailbacks have still not been received after four weeks, then a second set of mailbacks is sent.

Local businesses and/or Puerto Rico Tourism Company or Puerto Rico Sea Grant may be offering gifts to all respondents after completing the short form. Some gifts have been confirmed and the University of Puerto Rico is working to finalize the complete list of gifts. A non-profit organization, Ridge-to-Reefs has agreed to run the sweepstakes/lottery.

**Internet Panel:** The Internet Panel survey uses four modules of questions: 1) Intensity of use by

activity and region; 2) importance-satisfaction ratings; 3) expenditures; and 4) non-market economic values, and how those values change with changes in natural resource attribute conditions (Choice questions). The activity use, importance-satisfaction, and expenditure questions have been adapted from the former applications in the Florida Keys in 1995-96 and 2007-08 and at many sites done via PARVS and CUSTOMER with the U.S. Forest Service. The non-market economic value questions are all new.

In the “INTRODUCTION”, respondents are given information about their participation, who the sponsors are, the estimated time of completion, and where to send any comments regarding the burden estimate or any other aspects of the survey.

Then respondents are given a summary of the types of information they will be asked.

**Part A: General Activities: Intensity of Use by activity and region (Part A).** The short form gathered participation data by activity and region. This data will be programmed into the Internet Panel database so each respondent doesn't have to be asked this again and the respondent is only asked for intensity of use (person-days and number of dives) for those activities they did in what regions they did them in. This lowers the burden hour requirement on the respondent.

We only ask for intensity of use for activities with a suffix of “A” on the activity identification number (See White Card – Activities List for the Short form). Again, this lowers burden on the respondent. Maps showing each region as in the on-site short form surveys are included to aid the respondent on region definition.

**Reef Use Activities (Part B).** Section B addresses use on the natural/coral reefs. Here there are four questions for each region where someone in the party did the recreation activity on the reefs. If no one in the party did an activity in a region, the computer is programmed to skip to the next region. Again, this lowers burden on the respondent.

Question B1. Which activities did you or someone in your party do on the natural/coral reefs during your recent visit to Puerto Rico where you were interviewed? All activities on the “Blue Card” are listed with radio buttons for selecting each activity.

Questions B2 to B5. For each activity given in Question B1, respondent is asked:

Did you yourself do “Activity” in Region \_\_\_\_ (1, 2, 3, 4, 5)?

How many others in your party did “Activity” in Region \_\_ (1,2, 3, 4, 5)?

How many different days did you do “Activity” in Region \_\_ (1, 2, 3, 4, 5) on your most recent visit to Puerto Rico?

NOTE: For Snorkeling and SCUBA diving Activities only.

How many different dives did you do for “Activity” in Region \_\_ (1,2,3,4,5) on you most recent visit to Puerto Rico?

NOTE: Provide definition of a dive: A dive is defined as an entry and exit from the water to snorkel or SCUBA dive.

Again, days or number of dives are only asked for those activities on the Blue Card that has a suffix of “A” on the activity identification number to reduce burden on the respondent.



*Importance-Satisfaction Ratings/Special Issues (Part C).* For the Internet Panel Survey, this is Part C of the on-line survey and is a mailback for those who don't join the Internet Panel but agree to fill-out the mailback instead. For the Internet Panel, scores are recorded using radio buttons. Twenty five items (25) are rated on importance and satisfaction using five-point Likert scales. This is followed by a historical rating of how users would have rated these same 25 items in terms of satisfaction levels 5 years ago. Respondents are first asked if they had visited Puerto Rico more than five years ago, if yes they answer the retrospective rating and if no they skip to the next section. The next section again has 25 items that use the expectancy-discrepancy method by first asking about their expectations and then what they accomplished or actually experienced. Both use five-point Likert scale scores as in past research. This method adds more explanation of people's satisfaction scores.

This section concludes with a series of questions addressing special issues of local importance. First, questions are asked about boat ownership and length of boat and second homes with access to coastal waters to assess local infrastructure. The importance of beaches to the decision to visit Puerto Rico is assessed using a five-point Likert scale importance rating. A series of questions are designed to assess return visitation. First, two questions address experience with visiting Puerto Rico and then six questions address return visitation. Three of these questions address how prior cruise ship visitation may have influenced a non-cruise ship visit. The Puerto Rico tourism agency is concerned about conflicts between cruise ship visitation and non-cruise ship visitation and wants more information about the relationship. Two questions assess preferences for level of development. This section concludes with eight statements rated using a five-point Likert scale on level of agreement on issues such as marine protected areas, marine reserves, research only areas, protection of threatened and endangered species, outreach/education versus enforcement of rules and regulations and coral nurseries.

*Expenditures (Part D).* This section addresses both trip expenditures and annual vacation and equipment expenditures. Information is obtained on the number of people the expenditures cover so we can normalize expenditures to expenditures per person per trip so they can be extrapolated from sample to population estimates. We ask that the person who made the expenditures answer these questions. For trip expenditures, we have two columns with column 1 being total trip expenditures and column 2 the amount spent in Puerto Rico. This will allow estimation of the economic impact of trip spending on the Puerto Rican economy. For annual vacation and equipment expenditures we have three columns. Total expenditures during the past 12 months, the amount spent in their home county, and the amount spent in Puerto Rico. The third column allows us to estimate the economic impact on the Puerto Rican economy.

This expenditure questionnaire has been used by the U.S. Forest Service, NOAA, the Department of Interior's National Park Service and Bureau of Land Management and the U.S. Army Corps of Engineers on many federal, state and local sites throughout the nation since 1985. The questionnaire has evolved over time based on much learning on how people respond to the various expenditure categories. Sometimes what seems intuitive to reviewers is not true. We have learned that combining some expenditure items with the objective of reducing respondent burden has resulted in the opposite effect. Many times people will breakout their expenditures and write them into the questionnaire as separate items. The respondent is shifting the burden to us to add the items up. Thus, this results in increasing the burden to the respondent in having to write down the separate expenditure and increases the burden to the government of processing

the information. The solution is to in future questionnaires breakout the expenditure items.

An example is the breakout of drinks bought at clubs and bars during non-meal times and food and drink bought at restaurants and bars. Originally these were combined into one spending category but most recent applications were finding that people were writing in these separately. We assume it is because it is easier for the respondent (less burden) to write in these expenditures separately. They were shifting the burden to us to do the adding up, so by learning we added the breakout to reduce burden on the respondent and to reduce processing burden on the researchers.

*Economic Valuation of Puerto Rico's Coral Reef Ecosystems (Part E).* The introduction to this section provides some definitions and scientific facts about Puerto Rico's coral reef ecosystems. The respondent is then presented with four choice sets. For each choice set, the respondents are asked to choose among three options (alternatives). The Status Quo means no change in management or the coral reef ecosystems and the respondent is told choosing this option will cost their household nothing (\$0), but will result in the poorest or lowest conditions of coral reef ecosystems on all Puerto Rico's coral reefs, except a few places that are already specially protected.

Each of the options (alternatives) is a different mix (bundle) of condition levels across all the reef attributes. Each bundle of attribute conditions will be offered at a given price. Prices are varied across respondents for a given bundle (randomly assigned). There are four versions of the survey each containing the same four choice sets. The difference across versions is the prices/bid amounts for each option in each choice set.

***The prices or bid amounts are one of the main objects of the pre-test.*** The pre-test will include four extreme bundles of attributes to help design the range of prices (bid amounts) for the final survey. The four versions of the choices each have four sets of prices or 16 options plus the Status Quo. The final survey bundles will be based on statistical design using a fractional factorial design since the possible combinations of attributes (bundles) is much larger than can be presented in a survey (See Part B for a more detailed discussion).

To communicate the scientific facts and attribute conditions, a professional illustrator was hired to draw what the reefs would look like when all the attributes were in a "low condition", a "medium condition" and a "high condition". These illustrations were tested with the focus groups to check to see if people thought the illustrations were communicating the same thing as the scientific bullets describing reef attribute conditions. The reason illustrations are being used is that videos and pictures cannot capture all coral reef species since they are not all there at a given time. We think the combination of the scientific bullets and the illustrations communicate the goods and service a given bundle of attributes represent and thus provide a good description of what we are asking them to value.

Not all metrics from scientists are directly stated how they are actually measured. We made sure all the metrics we use in the survey could be calibrated back to how non-scientists understand them. For example, water clarity. Scientists measure water clarity via extent of light penetration. We had to have the scientists provide a conversion from ranges of light penetration to feet of visibility. We tested water clarity with focus groups to determine the ranges of water clarity that would change their values as we move from low to medium and medium and high

water clarity conditions. “Viz” or visibility measured in feet is a common metric that SCUBA divers and snorkelers talk about in rating dives.

Depth of reefs was not in our original list of attributes since most reefs in Puerto Rico are in depths of 60 feet or less. However, in our focus groups, many said depth was an important attribute and is different across activities: important for both SCUBA divers and snorkelers because of physical limitations but not for fishermen. Again, as discussed above, it is why in analyses we interact activity participation with reef attributes.

Fish per square meter was tested with the focus groups and all were comfortable with it. In fact, we had a typo in the first resident focus group where we had too many spiny lobsters per square meter. It was quickly caught by the group as an unrealistic number per square meter. They asked if we meant per 10 square meters. Once we corrected the typo, they were satisfied with the number of spiny lobsters per square meter.

In addition, when we tested the use of the illustrations in combination with the scientific bullets for consistency of communicating the same thing, respondents all agreed they were communicating the same thing across different attribute conditions. This is true for all metrics provided, except for the “low condition” and the amount of soft corals and sponges, which we are corrected.

So we are providing metrics that respondents will understand and we don’t think we need to add more questions and more burden to respondents probing them if they understood the metrics.

For crowding, we used photos of the number of people on the beach. Focus group members said they didn’t need to see the number of people in the water or the number of boats on the water where they did their activities. Instead, they thought just a general number of people on the beach would suffice. We used numbers of people based on other research to define low, medium and high conditions for this attribute.

For water/clarity/visibility, focus group members said they didn’t need visuals, the ranges provided in the descriptions of low, medium and high conditions were good enough.

To be incentive compatible (i.e. like what a consumer would face in real markets), the respondent is asked to make a choice of their preferred option for each set of choices.

Respondents are first given some definitions of coral reefs and coral reef ecosystems. They are then provided information on the different reef conditions and definitions of different reef attributes, this is followed by information on the health of the reefs and some relationships between some attributes and some of the factors threatening the health of coral reefs. They are then presented with problems and management solutions. Here information is provided on the conditions of the reefs in 10 to 20 years under the “Status Quo” (no change in management) and if this is continued it will lead to poor or low conditions. Then respondents are provided information on the cost to their household per trip for improving various conditions and defining the payment method. They are told they always have the option of choosing the “Status Quo” which will cost their household nothing.

The illustrations of the different reef conditions of low, medium and high are presented and pictures of different levels of crowding on the beach. They are then asked two questions. E1 asks if they believed the information from coral scientists that in 10 to 20 years nearly all coral reefs in Puerto Rico would be in poor or low condition if current management practices continued. E2 then asks if we don't change current management practices how do they think coral reef conditions will be like in 10 to 20 years.

Respondents are then reminded that if they pay for improving conditions they will have less to spend on other things and they have the ability to substitute to three protected reefs In Puerto Rico or reefs outside Puerto Rico.

They are then presented with four different choices. For the pre-test, the four choices all have the "Status Quo" price equal to zero and options B and C, are mixes of low, medium, and high conditions. There are four versions of the survey choices that are randomly assigned with each version having the same four choices, but the prices vary across different versions. This is done to design the final prices in the full survey.

Once the prices are designed the full survey will include nine versions of the survey which will be randomly assigned across panel members. Each respondent still gets four choice questions. However, in the full survey the choices are designed using statistical design with price simply one of the attributes that varies across the choices (See Part B for a full discussion).

Following each choice, the respondent is asked how many days per year they would use Puerto Rico's coral reefs under the conditions for the option they chose. This will allow us to connect expenditures (normalized per person per day) to the use under each choice to estimate the economic impact on the local economy under different scenarios of reef conditions.

After each choice, respondents are also asked to provide a brief comment to help understand why they chose the option as their most preferred. Here we will find out if there are real economic reasons (prices too high, more than they are willing and able to pay) or if they are rejecting the scenario (i.e. don't believe management could achieve what we say they can achieve, just anti-government, not enough information, don't believe the information provided, etc.).

We also ask about the certainty with which they made each choice. This will aid in assessing the quality of the response.

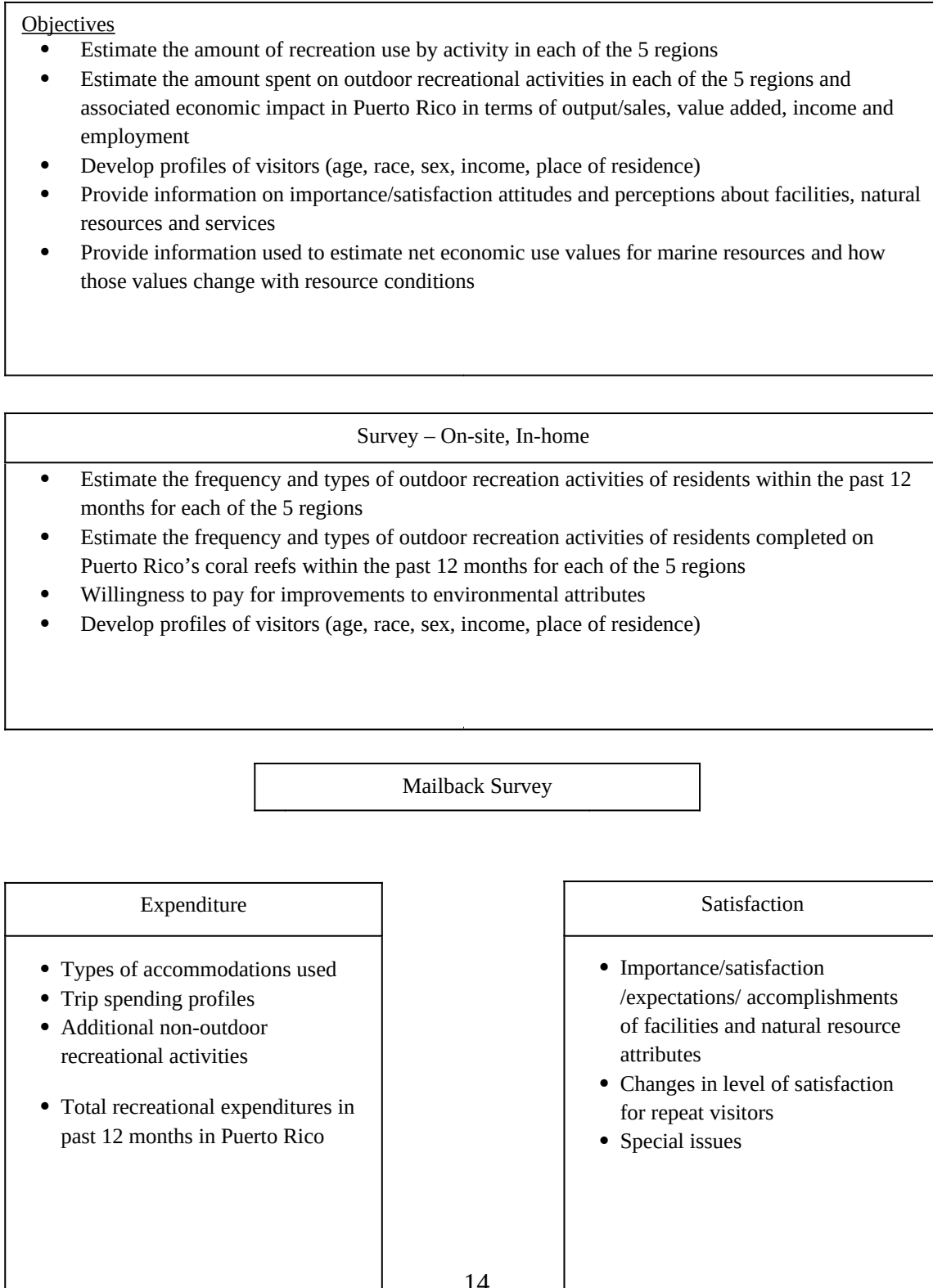
At the end of the choice sets debriefing questions are asked to help us learn more about the choices made. Question E19 asks if the respondent understood that the cost they were asked to pay for each alternative was the per trip cost to their household. E20) focuses on the payment vehicle used to say how the prices (bids) are accepted. Question E21 follows up to ask who they felt was the preferred organization to manage funds to be used to manage the reefs. These questions address possible payment vehicle bias. Question E22 asks for self-evaluation on the environmentalist scale. In question E23, a final set of ten statements are presented and respondents are asked to score these using a five-point Likert scale for agreement with the statements. This adds more information to assess choice responses. Questions E24 and E25 ask for further information to assess quality of responses. E24 asks about the condition of the reefs they personally visit or use and question E25 asks about the respondent's certainty about if the additional funding for improving reef conditions would actually achieve the environmental

protection goals. The survey ends with asking respondents for comments they would like to make to help us understand their views about coral reefs in Puerto Rico and their responses to the survey.

## Resident Survey

Figure 2 shows the sampling frameworks and corresponding questionnaires and issues addressed in each questionnaire or modules of questions in the resident of Puerto Rico household surveys.

Figure 2. Resident Survey



Households are randomly selected from U.S. Census Bureau files (see Part B for details of household selection process). A Tally sheet contains the screening criteria for eligibility in the survey. First, households will be sent a pre-notification letter describing the survey and which will provide a number to call for any questions. Dates and times of when the surveys will be conducted in neighborhoods will be provided. People will be given the option of informing the University whether anyone in the household is eligible for the survey. This could save time and money in having to go to households that are not eligible, while still allowing for estimating the proportion of households that contain permanent residents of Puerto Rico that are coral reef users.

**Tally Sheet:** This is used to determine the proportion of households that are eligible for the survey. First, respondent is asked if any of the household members are permanent residents of Puerto Rico. Seasonal residents are screened out since they are captured in the visitor survey. Seasonal residents are people who visit Puerto Rico six months or less per year. If no member of the household is a permanent resident, they are thanked and a tic mark is recorded in column 4 of the Tally sheet. The respondent is shown the Blue Card containing the Activities List for coral reef use and asked if anyone in the household did any of these activities on Puerto Rico's coral reefs in the last 12 months. If the answer is no, a tic mark is placed in column 5 and the person is thanked for their time. If yes, the respondent is asked if any of the users over 16 of age is home and could they participate in a survey that could take 30 minutes to one hour. People are given a description of the sweepstakes/lottery and gifts they potentially win if they participate in the survey. If no, a tic mark is placed in column 6 if a refusal. If might participate at a later time a time for scheduling the survey is recorded and place tic mark in column 3. If the person says yes, then a tic mark is placed in column 7 of the Tally sheet and the interview is conducted. The Tally Sheet contains seven columns: 1= Date of Interview; 2=Time Period of Interviews; 3=Not Home ; 4=Not Permanent Resident; 5=Non Reef Using Permanent Resident; 6=Reef User Recreating Permanent Resident, but Refusal or Language Barrier; and 7=Reef Using Recreational Permanent Resident and completed Interview.

### ***On-site Survey Form and Supporting Materials***

The on-site survey form is divided into four parts. Part A addresses participation and use for all outdoor recreation activities in the five regions of Puerto Rico. Part B addresses reef use activities on the coral reefs in all five regions of Puerto Rico. Part C addresses the non-market economic values of coral reef use and how those values change with changes in coral reef attributes. Part D addresses user demographics.

Several information cards are produced with information to aid in answering questions. Each is a laminated card on different color paper. The "Green Card" or Respondent Card includes some background information on who is conducting the study and who is sponsoring the study. Required information on where to send comments or suggestions for reducing burden is included and the standard required statement about the Paperwork Reduction Act. For Part A, the "White Card" or full Activities List card and maps of the five regions are used. For Part B, the "Blue Card" or coral reef activities card and the maps for the five regions is used. For Part C, three cards are used: the Coral reef definitions and conditions card, the Management Solutions card, and the Economics Valuation card. For Part D, the Demographics card is used.

***On-site Form, Part A: Outdoor Recreation Activities during the past 12 month in Puerto Rico.*** The respondent is first handed the “White Card” or Activities List Card and the maps of each of the five regions. Question A1 asks “Which of the activities on the enclosed Activities List did you or someone in your household do in the Puerto Rico during the last 12 months?” Interviewer fills in all activity numbers. Interviewer then asks for each activity (Question A2), “Did you, yourself do that *activity* during the past 12 months in the Region 1, Region 2, Region 3, Region 4 and Region 5?” Interviewer fills in circle for each activity respondent did in each region. The interviewer then asks Question A3 “On how many different days did you, yourself participate in each activity in the Region 1, Region 2, Region 3, Region 4 and Region 5?” Interviewer then fills in number of days for each activity for each region. The interviewer only asks the number of days for activities on the Activities List with a suffix of “A” to reduce burden. Then the interviewer asks Question A4, “How many others (excluding yourself) in your household did each activity in the Region 1, Region 2, Region 3, Region 4 and Region 5?” Interviewer then enters the number others in the household that did the activities in each region. Interviewer then asks Question A4 “What would you say is the most important activity you did in the Puerto Rico?” Interviewer writes down activity number or checks box that respondent had no most important activity. Interviewer then asks Question A5 “On how many different days did you participate in outdoor recreation activities outside of Puerto Rico during the past 12 months? Interviewer records number of days.

***On-site Form, Part B: Coral Reef use in the Puerto Rico during the past 12 months.***

Interviewer first hands the “Blue Card” or Activities List for reef activities, then asks Question B1 “Which activities did you or someone in your household do on natural/coral reefs during the past 12 months in northwest Puerto Rico (Region 1), southwest Puerto Rico (Region 2), southeast Puerto Rico (Region 3), northeast Puerto Rico (Region 4) and the islands of Culebra and Vieques (Region 5)? If respondent did not do any activities in a region, the interviewer checks the box for no activities sin the region. This allows for more efficient coding and time burden. Interviewer puts an “x” in the circle for each activity the respondent did in each region. Interviewer then asks for each activity in each region Question B2 “How many others in your household did each activity in each region?” Interviewer fills in the number of others that did each activity in each region. The interviewer then asks Question B4 “How many different days did you yourself do each activity in each region. Interviewer explains that a day is a whole day or any part of a day. Interviewer records the number of days for each activity in each region. For all snorkeling and SCUBA diving activities, the interviewer then asks Question B5 “How many dives did you do for each snorkeling and SCUBA diving activity in each region. Interviewer gives the respondent the definition of a dive where a dive is an entrance and an exit of the water. Interviewer then fills in number of dives.

***On-site Form, Part C: Economic Value of Puerto Rico’s Coral Reef Ecosystem.***

Interviewer first reads an introduction to the section.

“In this section of the survey, I will first present to you some definitions and scientific facts about Puerto Rico’s coral reef ecosystems. I will then present you with different reef conditions



and the cost to your household to achieve those conditions. I will then ask you to choose among a set of different conditions and the cost to your household.”

“First, here are some definitions of what we mean by coral reefs and coral reef ecosystems.” Interviewer hands respondent the “Coral Reef Definitions and Conditions Card” and the illustrations showing low, medium and high conditions for the reefs and asks them to take a few minutes to read the card. Then the interviewer asks Question C1 “if the respondent has any questions”. If respondent has questions, interviewer answers questions before proceeding.

Interviewer then hands the respondent a card with pictures of some of the stony corals, soft corals, sponges, fish and macroinvertebrates that have been observed on Puerto Rico’s coral reef ecosystems.

The interviewer then hands the respondent the Management Solutions card and asks the respondent to read the card. When the respondent is done reading the card, the respondent is asked Question C2 ‘if they have any questions about the information on the card. If so, the interviewer answers questions before proceeding.

The respondent is then asked two questions about the information presented. C3 asks if the respondent believed the information from coral scientists that in 10 to 20 years if current management practices continued that nearly all coral reefs in Puerto Rico would be in a poor or low condition. If the answer is “No”, then they are asked if they thought if current management practices did not change, the “Status Quo” whether they thought coral reef conditions in 10 to 20 years would stay the same, improve or worsen.

Interviewer then reads the following:

“I now will present to you a set of reef conditions at different prices and will ask you for your most preferred option. The Status Quo means no change in the management of the coral reef ecosystems and choosing this option will cost your household nothing (\$0), but will result in the poorest or lowest conditions of coral reef ecosystems on all Puerto Rico’s coral reefs, except a few places that are already specially protected. In each set of options, you will always have the option of choosing the Status Quo as your most preferred option.”

The respondent is then provided the following reminder dealing with substitution possibilities.

**“Remember when making your choices on how much you are willing to pay that you only have so much income and if you pay to improve reef conditions you will have less to spend on other goods, services, and social issues that are important to you. Also, even under the low conditions there are three coral reefs within Puerto Rico that have strong protections that you could use, in addition to coral reefs outside Puerto Rico.”**

The interviewer then hands the respondent the card with Choice 1 and reads the following:  
Pre-test Version:

“Please review the three options. Option A is the Status Quo and costs you Nothing, but all reef conditions are in a low condition. For Option B, all the reef conditions are at a medium level of condition and will cost your household \$\_\_ per year. For Option C, all reef conditions are improved to the highest condition and will cost your household \$\_\_ per year.”

NOTE: The dollar amounts are randomly assigned.

Full Survey Version:

**“Please review the three options. Option A is the Status Quo and costs you Nothing, but all reef conditions are in a low condition. For Options B and C, reef conditions are a mix of low, medium and high levels of condition. Option B will cost you’re your household \$\_\_ per year and Option C will cost your household \$\_\_ per year.**

Interviewer then asks Question C5 “Which option do you prefer? Interviewer then records response.

Interviewer then asks Question C6 “How many days would you use Puerto Rico’s Coral Reefs under the reef conditions for the option you prefer?” Interviewer then records the number of days.

Interviewer then asks Question C7 “Please provide a brief comment that helps us understand why you chose the option as your most preferred option? Interviewer then records response.

Interviewer then hands the respondent the “Economics Valuation Card”. Then asks respondent Question C8 “How sure are you that the option you chose as your most preferred among the three options is your most preferred, not sure at all, slightly sure, moderately sure, very sure, or extremely sure? Please refer to Section 1 of the Economics Valuation Card and tell me the letter corresponding to your answer. Select one answer only.” Interviewer records letter corresponding to the respondents answer.

Interviewer then hands the respondent the card with Choice 2 and reads the following:

Pre-test Version:

“Please review the three options. Option A is the Status Quo and costs you Nothing, but all reef conditions are in a low condition. For Option B, some reef conditions are at a low level and some at the medium level of condition and will cost your household \$\_\_ per year. For Option C, some reef conditions are at the medium level and some are improved to the highest condition and this will cost your household \$\_\_ per year.”

NOTE: Dollars are randomly assigned.

Full Survey Version:

**“Please review the three options. Option A is the Status Quo and costs you Nothing, but all reef conditions are in a low condition. For Options B and C, reef conditions are a mix of low, medium and high levels of condition. Option B will cost you’re your household \$\_\_ per year and Option C will cost your household \$\_\_ per year.**

Interviewer then asks Questions C9 “Which option do you prefer? Then interviewer records response.

Interviewer then asks Question C10 “How many days would you use Puerto Rico’s Coral Reefs under the reef conditions for the option you prefer? Interviewer then records number of days.

Interviewer then asks Question C11 “Please provide a brief comment that helps us understand why you chose the option as your most preferred option? Interviewer records response.

Interviewer then hands respondent the “Economic Valuation Card” and asks Question C12 “How sure are you that the option you chose as your most preferred among the three options is your most preferred, not sure at all, slightly sure, moderately sure, very sure, or extremely sure? Please refer to Section 1 of the Economics Valuation Card and tell me the letter corresponding to your answer. Select one answer only. Interviewer records the response.

These same procedures and questions are asked for choices 3 and 4.

The choice questions are limited to four choices per respondent to reduce overall burden even though the literature suggests that survey fatigue has not been experienced with more choices. However, our survey includes two other sections on use that will take some time and must be considered in evaluating overall burden. The pre-test will tell us more about whether our estimates of burden hours are correct and survey fatigue is not an issue.

Questions C21 through C27 provide us information to further evaluate the quality of responses and to assess additional factors that might explain people’s responses to our choice questions.

Question C21 ask whether the respondent understood that the dollar amount for each alternative was the annual (yearly) cost to their household. C22 asks about how people would prefer to pay for environmental goods and services, while C23 asks what organization they prefer to manage the funds. These questions will help us address whether we might have payment vehicle bias. C24 asks respondents to self-evaluate how they would classify themselves on the environmentalist scale. Interviewer first hands respondent the Economics Valuation card and asks “Would you say you think of yourself as not an environmentalist at all, slightly an environmentalist, a moderate environmentalist, a strong environmentalist or a very strong environmentalist? Please refer to Section 2 of the Economics Valuation Card and tell me the letter corresponding to your answer. Select on answer only.” Interviewer then records letter corresponding to the response.

Question C25 is designed to help us evaluate the quality of responses to the choice questions to check to see if responses might be based on scenario rejection or other reason for why they may have preferred the “Status Quo” not related to their real willingness and ability to pay. In addition respondents are asked about how the illustrations of reef conditions and the pictures on crowding helped them in making their choices. uses a five point Likert scale on agreement with the five statements.

Question C26 asks about the reef conditions the respondent actually experiences during their visits or use. Question C27 asks how certain respondents were that additional funding would actually lead to achieving the goals of protecting the environment.

Part C (C28) is concluded by allowing the respondent to provide comments on the survey, again to aid us in interpreting the quality of the response.

***On-site Form, Part D: Demographics and Participation in Mailback Survey.*** This is the final section of the on-site survey and gathers information for a demographic profile of the respondent

and the household, and also asks if the respondent will participate in filling out the self-addressed, postage paid mailbacks.

Respondents are first told that the information is important for us so we can determine if we have a representative sample of Puerto Ricans and are also informed that we will protect the privacy of their information.

Interviewer asks Question D1 “How many people in your household are permanent residents of Puerto Rico?” Interviewer then records response. Interviewer then asks Question D2 “How many of these household members are age 16 or older?” Interviewer then records response. Interviewer then asks Question D3 “Do you own a boat? Interviewer records response. This question may provide important information in predicting activity participation and possibly economic valuation.

Interviewer then asks Question D4 “How many years have you lived in Puerto Rico? Interviewer then records response. Interviewer then asks Question D5 “In what year were you born?” Interviewer records response. This way of asking for age reduces the amount of non-response to age and allows for creating age as a continuous variable in place of a categorical variable. Interviewer then asks Question D6 “Are you Hispanic, Latino, or of Spanish origin?” Respondent records response. This question addresses ethnicity and adheres to OMB guidance.

Interviewer then hands respondent the Demographics Card and asks Question D7 “What race do you consider yourself? Please refer to Section 1 of the Demographics Card and tell me the letter or letters that best describes you.” Interviewer records responses. This question on race is in compliance with OMB guidelines. However, in focus groups with residents, there was some reluctance to answer this question even when they could give multiple responses. Some did not like answering this question. We don’t know how general this might be so the pre-test will tell us more about expected non-response to this question.

Interviewer then asks Question D8 “What is the highest level of education that you have completed? Please refer to Section 2 of the Demographics Card and tell me the letter corresponding to the category that best describes you.” Interviewer then records response.

Interviewer then asks Question D9 “What is your employment status? Please refer to Section 3 of the Demographics Card and tell me the letter corresponding to the category that best describes you.” Interviewer then records response.

Interviewer then asks Question D10 “What is your household income before taxes? Please refer to Section 4 of the Demographics Card and tell me the letter corresponding to the category that best describes you.” Interviewer records response.

Interviewer then informs respondent that this concludes the survey but there are some additional mailback surveys about their expenditures and their importance-satisfaction ratings. Question D11 asks if they will take the mailbacks. The respondent is told if they complete the mailbacks it will double or triple their chance of winning the prizes in the sweeps stakes/lottery since they will be entered once for the on-site survey and once for each mailback survey they complete and return.

If the respondent accepts the mailbacks, the respondent record the Survey Identification number on each mailback and explains how to turn the survey so the green pages are on the outside with University of Puerto Rico address and how to seal it before mailing. They are reminded that postage is pre-paid by the University.

Interviewer thanks the respondent.

### **How Frequently**

This is a one-time information collection. For visitors, seasonal samples (winter and summer) are required because of significant differences in visitors by season. For residents of Puerto Rico, a one-time survey of annual activity will be obtained.

### **How information disseminated to the public complies with NOAA Information Quality Guidelines**

#### ***Utility***

This information collection will result in a series of reports that will be posted on the ONMS Socioeconomics Web site in portable document format (pdf). Technical appendices will be published detailing all the estimation methods. CD-ROMs will be made available to the public with all data and documentation so others could replicate study estimates (subject to non-disclosure when in conflict with the Privacy Act). The full surveys will be designed to estimate the market and nonmarket economic use values for Puerto Rico's coral reef ecosystems for recreation-tourism uses and how those values change with changes in the attributes of the coral reef ecosystems (e.g. water clarity/visibility, coral cover and diversity, and fish abundance and diversity). For examples of reports on profiles of visitors, see Leeworthy and Wiley (1996a) and Leeworthy, Loomis and Paterson (2010). For examples of reports on economic contribution to local economies, see English, Kriesel, Leeworthy and Wiley (1996) and Leeworthy and Ehler (2010a). For examples of importance-satisfaction ratings, see Leeworthy and Wiley (1996b) and Leeworthy and Ehler (2010b). For Technical appendices on how estimates were made, see Leeworthy (1996) and Leeworthy (2010).

The information will be used in a decision-support tool being developed by EPA and NOAA to support the Guanica Bay Watershed Restoration Management Plan; by Puerto Rico Tourism Company in assessing their visitor populations; Puerto Rico territorial planning agencies in assessing uses of Puerto Rico's coral reef ecosystems for recreation-tourism uses and impacts on their local economies; and local businesses in assessing the economic impacts of coral reef uses on their local economy and what is important to visitors and residents and how satisfied they are with different facilities and services. The territorial government and NOAA may also use the results in benefit-cost analyses of investments in coral reef ecosystem protection and restoration, and possibly in damage assessments.

We plan to use the IMPLAN input-output model for Puerto Rico for estimating the total output/sales, value-added, income and employment impacts associated with visitor and resident expenditures. For visitor impacts we include the direct, indirect and induced impacts. The indirect and induced impacts are the "multiplier effects". Visitors inject new dollars into the economy. For residents, it would be double-counting to include the full multiplier impacts. Many economists include only the "Direct effect" of resident spending, while others include all

the impacts and use the “import substitution” argument to justify the double-counting. Import substitution maintains that if things deteriorated such that Puerto Ricans traveled to other nearby islands for coral reef recreation, then Puerto Rico would lose the expenditures and associated output/sale, value-added, income and employment associated with the spending

We (NOAA) also use the importance-satisfaction ratings to guide our education/outreach efforts. When we combine ratings on satisfaction of natural resource attributes with ecological monitoring of those same attributes we can determine if people’s ratings are consistent with what people perceive. Satisfaction ratings are people’s perceptions and perceptions drive their behavior. So if people are perceiving that hard coral abundance (coral cover) is declining and the ecological monitoring indicates it is not, this is an education/outreach problem. If we can correct their perceptions by effectively communicating the ecological monitoring results, we can avoid losses of people substituting to alternative locations for their activities. If instead, both people’s satisfaction ratings are low or declining and ecological monitoring is also low and declining, then there is a chance in some cases to invest in restoration before the negative change in behavior (the substitution) occurs, i.e. usually there is a lag in time between when perceptions are formed and people change their behavior, so this represents an investment opportunity.

For the non-market economic valuation, we are valuing the coral reefs and their ecosystems. We are valuing the final ecosystem service of Puerto Rico’s coral reef ecosystems of recreation-tourist uses. Final ecosystem services are based on attributes of the natural system, in this case the coral reef ecosystem that people care about while doing recreation-tourist activities on the reefs. Intermediate ecosystem services are included in these final ecosystem service values.

### ***Objectivity***

The full surveys will use a stated choice conjoint method incorporating different combinations of coral reef attributes and levels of the attributes where people will make choices on their preferred bundle of reef attributes for a certain specified cost (a simulated market). This method is now considered state-of-the-art in the science of natural resource economic valuation. The goal will be to provide specific description of the goods or services provided by coral reefs that people are being asked to value or the changes in the goods or services via changes in the attributes of the coral reef ecosystems. Peer review will ensure that the information collected is accurate, reliable, and unbiased and that the information reported to the public is accurate, clear, complete and unbiased.

### ***Integrity***

During the focus group sessions, pre-tests and in the final surveys, participants will be reminded that their participation is voluntary, that their responses will be protected, and that any material identifying them will not be provided to anyone.

NOAA will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards for confidentiality, privacy, and electronic information. See response to Question 10 of this Supporting Statement for more information on confidentiality and privacy. The information collection is designed to yield data that meet all applicable information quality guidelines. 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 techniques or other forms of information technology.**

For the survey of visitors, Internet Panels will be used. The Internet Panels will be recruited via a stratified sample of visitors as they leave Puerto Rico at all airports with flights leaving the island. Illustrations are used to give survey respondents visuals of different reef attribute conditions to supplement scientific bullets of reef attribute conditions. The illustrations were tested with the focus groups to ensure they were communicating the same information as presented in the scientific bullets. Maps are used to assist survey respondents with the regions where they did their recreation-tourist activities. Photos are used for crowding conditions.

**4. Describe efforts to identify duplication.**

We have conducted a world-wide review of the literature (submitted as a supplementary document in our application to do the focus groups (OMB Control Number 0648-0660, expiration 02-29-2016) on coral reef valuation for recreation-tourist uses. One study was found for Puerto Rico that was limited to the coral reefs off the Northeast coast of Puerto Rico. The study was focused on total economic value but did not address how values might change with changes in coral reef attributes, which is critical to the current effort. See Attachment E for the review of literature.

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

The surveys will target individuals rather than small businesses or small entities.

**6. Describe the consequences to the Federal program or policy activities if the collection is not conducted or is conducted less frequently.**

Without this collection, NOAA will not be able to meet its obligation under the Interagency Agreement with EPA.

**7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.**

This collection is consistent with OMB guidelines.

**8. Provide information on the PRA Federal Register Notice that solicited public comments on the information collection prior to this submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.**

A Federal Register Notice published on January 9, 2014 (1630 FR Vo. 79, No. 6) solicited public comments. No comments were received.

**Efforts to consult with persons outside the agency**

For the focus group, work was targeted at determining the attributes of coral reef ecosystems those recreation-tourist users of Puerto Rico care about and the levels of those attributes that might change their economic use values for Puerto Rico's coral reefs. NOAA has a multiple-organization partnership called the Marine Ecosystem Service Partnership (MESP). MESP is an on-line annotated bibliography of all studies done world-wide on natural resource valuation in marine (coastal and ocean) resources <http://www.marineecosystems-services.org>. In addition, MESP has joined The Ecosystem Commons <http://ecosystemcommons.org> to engage in a "community of practice". A "community of practice" is a group of technical experts that will provide free consultation on how to do economic valuation of ecosystem services.



We also conducted a review of the literature using the MESP site to see what other economic valuation experts world-wide had done with respect to coral reef attribute valuation for recreation-tourism uses. Only four studies world-wide were uncovered that addressed the value of attributes of coral reef ecosystems for recreation-tourism and how economic value changes with changes in the levels of those attributes. None of the studies addressed the coral reef ecosystems of Puerto Rico.

A query to Ecosystem Commons was made along with the World Resources Institute (WRI), which is a key partner in MESP on relevant work on attributes and their levels for coral reef ecosystems. No additional experts were discovered.

We will construct a peer review panel consisting of authors of past work on the economic value for recreation-tourism of coral reef attributes. Jeffrey Wielgus, author of work in the Red Sea which was published in Marine Resource Economics Journal (Wielgus et al, 2003) and now with WRI will be a key peer reviewer. We will also seek peer review by George Parsons at the University of Delaware who is co-author on an economic valuation in Bonaire (Parsons and Thur, 2008).

Matt Weber of EPA has been conducting similar work on ecosystem service valuation using stated preference conjoint methods and is on our working team as a reviewer.

**9. Explain any decisions to provide payments or gifts to respondents, other than remuneration of contractors or grantees.**

For the final surveys, community members of Puerto Rico are organizing a sweepstakes/lottery for both residents and visitors that complete the surveys. Businesses are offering free hotels, rental cars, restaurant meals, snorkeling, SCUBA diving, sea kayak or fishing trips. A non-profit organization, Reef-to-Ridges, Inc. will run the sweepstakes/lottery and award the gifts. Puerto Rico Sea Grant is offering a free book on Puerto Rico's coral reef ecosystem organisms and coloring books to children. The University of Puerto Rico – Mayaguez will provide a list of database identification numbers to Ridge-to-Reefs, Inc. for those who completed the surveys. Ridge-to-Reefs, Inc. will select the winners and send the winning numbers to the University. The University will then send the names and addresses of the winners to Ridge-to-Reefs and destroy identifying information of survey respondents from the databases before sending data to NOAA. The brochure of gifts for residents and visitors are provided for the pre-test of the visitor and resident surveys in Attachment D. Gifts are still coming in from the community and the brochure will be revised for the full survey.

**10. Describe any assurance of confidentiality provided to respondents and the basis for assurance in statute, regulation, or agency policy.**

No assurance of confidentiality based on statute or regulation will be provided to the respondents. Respondents will be told that their identity will be protected. The anonymity of the survey members will be protected by using an independent contractor to collect the information (the University of Puerto Rico – Mayaguez, whose contract requires enactment of procedures to prevent unauthorized access to respondent data, and to prevent the public disclosure of the responses of individual participants. This will also be true for the Internet Panels to be

conducted by Gfk Custom Research, LLC (formerly Knowledge Networks, Inc.) under contract to the University of Puerto Rico – Mayaguez.

**11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.**

We will not ask questions of a sensitive nature.

**12. Provide an estimate in hours of the burden of the collection of information.**

Calculation of Burden Hours – Full survey

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**Visitor Surveys**

1. Airport Surveys		
a. Estimated Number of Participants		3,000
b. Estimated time per response	5 minutes	
c. Estimated total burden hours		250
2. Internet Panel		
a. Estimated Number of Participants		1,000
b. Estimated time per response	35 minutes	
c. Estimated total burden Hours		583
3. Mailbacks		
a. Estimated Number of Participants		200
b. Estimates time per response	20 minutes	
c. Estimated total burden hours		66.67 (67)
<b>Total Visitor Surveys burden hours</b>		<b>900</b>

**Resident Surveys**

1. In-house (face-to-face)		
a. Estimated Number of Participants		1,000
b. Estimated time per response	1 hour	
c. Estimated total burden hours		1,000
2. Mailbacks		
a. Estimated Number of Participants		900
b. Estimated time per response	20 minutes	
c. Estimated total burden hours		300

**Total Resident Surveys** **1,300**

**Total burden hours Visitor & Resident Surveys** **2,200**

Total participants equals 4,600 (600 pre-test and 4,000 full survey) for an estimated total burden hours of 2,550 (350 pre-test and 2,200 full survey).

**13. Provide an estimate of the total annual cost burden to the respondents or record-keepers resulting from the collection (excluding the value of the burden hours in Question 12 above).**

There will be no record keeping/reporting costs to the respondents.

**14. Provide estimates of annualized cost to the Federal government.**

Total Funding for EPA-NOAA Puerto Rico Study on Recreation-tourism Use of Coral Reef

Ecosystem

Budget Categories	EPA Funds <sup>1</sup>	EPA In-kind <sup>2</sup>	NOAA In-kind <sup>3</sup>	Total Project <sup>4</sup>
(a.) Personnel	\$0	\$94,690	\$48,125	\$142,815
(b.) Fringe Benefits	\$0	\$23,673	\$3,640	\$27,313
(c.) Travel	\$5,000	\$3,000	\$0	\$8,000
(d.) Equipment	\$0		\$0	\$0
(e.) Supplies	\$0		\$0	\$0
(f.) Procurement/Assistance <sup>5</sup>	\$190,000		\$1,950	\$191,950
(g.) Construction	\$0		\$0	\$0
(h.) Other	\$0		\$0	\$0
<b>(i.) Total Direct Charges</b>	<b>\$195,000</b>	<b>\$129,363</b>	<b>\$53,715</b>	<b>\$378,078</b>
(j.) Indirect Costs	\$0		\$0	\$0
<b>(k.) Total</b>	<b>\$195,000</b>	<b>\$129,363</b>	<b>\$53,715</b>	<b>\$378,078</b>
Percentage of Total	51.58	34.22	14.21	100.00

1. EPA funds must all be obligated or spent in FY 2013.
2. EPA in-kind spread over FY 2012 (\$12,936.30), FY 2013 (\$38,808.90), FY 2014 (\$38,808.90)  
FY 2015 (\$38,808.90).
3. NOAA in-kind spread over FY 2012 (\$5,371.50), FY 2013 (\$16,114.50), FY 2014 (\$16,114.50)  
FY 2015 (\$16,114.50).
4. Total Project Costs spread over FY 2012 (\$18,307.80), FY 2013 (\$249,923.40), FY 2014 (\$54,923.40)  
FY 2015 (\$54,923.40).
5. Contract with University of Puerto Rico - Mayaguez for focus groups, pre-test and final surveys is \$190,000. Contract is between NOAA-ONMS and University of Puerto Rico - Mayaguez.

**15. Explain the reasons for any program changes or adjustments.**

This is a new information collection request.

**16. For collections whose results will be published, outline the plans for tabulation and publication.**

ONMS will work with the University of Puerto Rico – Mayaguez to estimate the number of participants and person-days of use by region for five regions of Puerto Rico for coral reef ecosystem use by activity. Total spending associated with the coral reef use will be estimated by expenditure type and the associated impacts of the spending on the Puerto Rican economy in terms of sales/output, value-added, income, and employment using the IMPLAN input-output model. Non-market economic use value will also be estimated and how that value changes with changes in natural resource attributes (i.e. marginal values of the attributes) and user characteristics. The importance-performance framework will be used for the importance-satisfaction ratings for 25 natural resource attributes, facilities and services and expectancy-discrepancy analysis will be applied to the satisfaction ratings to add additional explanation of the satisfaction scores. Importance ratings for natural resource attributes will provide human

dimensions non-dollar preference rankings as alternative measures of human well-being to the non-market economic estimates of natural resource attributes.

ONMS and the University of Puerto Rico – Mayaguez will publish a series of reports, technical appendices, executive summaries and fact sheets and posts all the products in pdf on the ONMS Socioeconomic Web site. A page for the Puerto Rico project will be developed on the ONMS Socioeconomic Web site (<http://sanctuaries.noaa.gov/science/socioeconomic/welcome.html>).

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

NA.

**18. Explain each exception to the certification statement.**

NA.