

Visitor Internet Panel Questionnaire

Note: This is a paper version of the survey intended to show the type of questions in the survey. The actual content of the Internet Panel on-line survey will take advantage of computer programming so that information not relevant need not appear. In addition, information obtained in the on-site short form for general activity participation and demographics is not repeated here. For general activities, the contractor will program the information from the on-site survey so only those activities done in each region will come up when asking number of days of use and number of dives.

INTRODUCTION

ABOUT THE INFORMATION YOU PROVIDE STATEMENT

Your participation in this interview is voluntary. There are no penalties for not answering some or all of the questions, but since each interviewed person will represent many others not interviewed, your cooperation is extremely important. This study is being conducted by the University of Puerto Rico - Mayaguez, the National Oceanic and Atmospheric Administration and the U.S. Environmental Protection Agency. Uses of the information include the evaluation of present recreation uses and planning for future visitation. At the end of the study any materials identifying you as an individual will be destroyed.

This is a cooperative research project of the Puerto Rico Sea Grant, the National Oceanic and Atmospheric Administration, and the U.S. Environmental Protection Agency. Public reporting burden for this collection of information is estimated to average 35 minutes including time for reviewing instructions, searching existing data sources, gathering and maintaining the data need, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to U.S. Department of Commerce, Clearance Officer, Office of Chief Information Officer, Rm. 6625, 14th and Constitution Avenue NW, Washington, DC 20230. Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subject to penalty for failure to comply with, a collection of information subject to requirements of the Paperwork Reduction Act, unless that collection of information displays a currently valid OMB Control Number.

This survey is a follow-up to the survey you took part in while in Puerto Rico. You will be asked:

- For more details on the activities you did on that trip.
- To rate various items as to how important and satisfied you were and your expectations about these items and what you actually experienced.
- Special issues of importance to local agencies and businesses related to your recreation experience.
- About your expenditures for that trip. We ask that the person who made the expenditures answer this part of the survey.
- Your value for the coral reef ecosystems in Puerto Rico under different conditions of the reefs.

PART A: GENERAL ACTIVITIES

Here you will be asked for the number of different days and number of dives (snorkeling and SCUBA diving activities) you did for each activity in each region. You will only be asked for activities you said you did while on that trip.

Need to put maps of regions in questionnaire.

Definitions: Day: A day is equal to any part of a day or a whole day

Dive: A dive is equal to an entrance and exit from the water.

A1. For activities with an activity number with an “A” suffix and the respondent did the activity ask, “how many different days did you do the activity on that trip to Puerto Rico in each region you did the activity?”

A2. For snorkeling and SCUBA diving activities with an activity number with an “A” suffix and the respondent did the activity ask, “how many different dives did you do on that trip to Puerto Rico in each region you did the activity?”

PART B: REEF ACTIVITIES

Here you will be asked for the activities you or anyone in your recreation party did on the natural coral reefs while on your trip to Puerto Rico where you were interviewed. You will be asked if you participated in each activity in each region, how many others in your party did the activity in each region, how many different days you did each activity in each region, and how many dives you did for snorkeling and SCUBA diving activities in each region.

Remind respondents they can go back to maps if needed.

B1. Which activities did you or anyone in your party do on the reefs in Puerto Rico on that visit? **(Radio buttons)**

Snorkeling

- 100A Snorkeling from charter/party boat (pay operation and includes snorkeling tours)
- 101A Snorkeling from a rental boat
- 102A Snorkeling from private boat (your boat or friend or relatives boat)
- 10A Snorkeling from shore

Scuba Diving

- 200A Scuba diving from charter/party boat (pay operation)
- 201A Scuba diving from a rental boat
- 202A Scuba diving from a private boat (your boat or friend or relatives boat)
- 11A Scuba diving from shore

Special Activities while Snorkeling or Scuba Diving

- 300 Diving for lobsters
- 301 Underwater photography
- 303 Spear fishing

Fishing – Inshore or Light Tackle Fishing

- 404A Fishing from charter/party boat or guide (pay operation) – inshore or light tackle
- 405A Fishing from rental boat – inshore or light tackle
- 406A Fishing from a private boat (your boat or friend or relatives boat) – inshore or light tackle

Other Fishing

- 407A Other fishing from charter boat (pay operation, usually six persons or less)
- 408A Other fishing from party or head boat (pay operation, charge per person)
- 409A Other fishing from a rental boat

- 410A Other fishing from a private boat (your boat or friends or relatives boat)
- 14A Fishing from shore (beach, bank, pier, bridge, jetty, dock)

Viewing Nature and Wildlife

- 500A Glass bottom boat rides (pay operation)
- 501A Inshore boating excursions (pay operation/guided service/NOT FISHING, including kayaking)
- 502A Viewing nature and wildlife from private or rental boat
- 503 Bioluminescent Bays
- 504 Ocean kayaking
- 505 Whale Watching

Other Activities on the Reefs

- 13A Surfing
- 15A Swimming
- 18A Paddle boarding, wind surfing or kite boarding

B2. For each activity respondent did, which regions did they do the activity? **(Radio buttons for regions)**

<i>Activity</i>	<i>Region 1</i>	<i>Region 2</i>	<i>Region 3</i>	<i>Region 4</i>	<i>Region 5</i>

B3. For each activity done by the respondent or member of party, how many others in the party did activity in each region?

<i>Activity</i>	<i>Region 1</i>	<i>Region 2</i>	<i>Region 3</i>	<i>Region 4</i>	<i>Region 5</i>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

B4. For each activity the respondent only did (from B2), how many different days did you do each activity in each region? **(Only activities they did in each region with an “A” suffix)**

<i>Activity</i>	<i>Region 1</i>	<i>Region 2</i>	<i>Region 3</i>	<i>Region 4</i>	<i>Region 5</i>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

B5. For each snorkeling or SCUBA diving activity respondent did (From B2), how many different dives did you do in each region? **(Only activities they did in each region with an “A” suffix)**

<i>Activity</i>	<i>Region 1</i>	<i>Region 2</i>	<i>Region 3</i>	<i>Region 4</i>	<i>Region 5</i>
_____	_____	_____	_____	_____	_____

B5 (continued)

<i>Activity</i>	<i>Region 1</i>	<i>Region 2</i>	<i>Region 3</i>	<i>Region 4</i>	<i>Region 5</i>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

PART C: IMPORTANCE & SATISFACTION RATINGS AND SPECIAL ISSUES

In this section, we will ask you to rate various items as to how important and satisfied you were, your expectations about these items, and what you actually experienced. We will also ask you some questions on special issues of importance to local agencies and businesses related to your recreation experience.

Here we are interested in identifying the recreation site information that is important to you, the visitor.

IMPORTANCE

C1.
Please rate each item as it contributes to an ideal setting for the recreation activities you did while in Puerto Rico. (Use radio buttons for responses dk=don't know, n/a=not applicable, 1=Not important, 2=Somewhat Important, 3=Important, 4=Very Important and 5=Extremely Important)

- 1) Clear water (high visibility)
- 2) Clean water healthy for swimming and other water-based activities.
- 3) Amount of living corals on the reefs.
- 4) Many different kinds of fishes and sea life to view
- 5) Many different kinds of fishes and sea life to catch
- 6) Control of invasive species (lionfish)
- 7) Enforcement of environmental laws and regulations.
- 8) Artificial reefs (sunken ships, reef balls, piers)
- 9) Easy, abundant and quality beach and shoreline access.
- 10) Marina facilities, boat ramps/launching facilities
- 11) Mooring buoys and navigational
- 12) Value of lodging (cost vs amenities: clean rooms & linens, working ac, hot showers)
- 13) Resorts with focus on Ecotourism/green initiatives: low energy use, recycling
- 14) Availability of public restrooms
- 15) Cleanliness of streets and sidewalks
- 16) Well-maintained roads and bridges
- 17) Public transportation
- 18) Parking
- 19) Historic preservation (historic landmarks, houses, etc.)
- 20) Educational posters, signs, brochures
- 21) Availability of tour guides
- 22) Availability of lifeguards for beach safety
- 23) Customer service and friendliness of
- 24) Public safety (areas with low crime rates)
- 25) Good maps and signage for road navigation

Here we are interested in how satisfied you were with each item.

SATISFACTION

C2.

Please rate each item as to how satisfied you were with each item at the places you recreated. (Use radio buttons for responses dk=don't know, n/a=Not applicable, 1=Terrible, 2=Unhappy/dissatisfied, 3=Mixed, 4=Happy/Satisfied and 5=Delighted)

- 1) Clear water (high visibility)
- 2) Clean water Healthy for swimming and other water-based activities. . .
- 3) Amount of living corals on the reefs.
- 4) Many different kinds of fishes and sea life to view
- 5) Many different kinds of fishes and sea life to catch
- 6) Control of invasive species (lionfish)
- 7) Enforcement of environmental laws and regulations.
- 8) Artificial reefs (sunken ships, reef balls, piers)
- 9) Easy, abundant and quality beach and shoreline access.
- 10) Marina facilities, boat ramps/launching facilities
- 11) Mooring buoys and navigational
- 12) Value of lodging (cost vs amenities: clean rooms & linens, working ac, hot showers)
- 13) Resorts with focus on Ecotourism/green initiatives: low energy use, recycling
- 14) Availability of public restrooms
- 15) Cleanliness of streets and sidewalks
- 16) Well-maintained roads and bridges
- 17) Public transportation
- 18) Parking
- 19) Historic preservation (historic landmarks, houses, etc.)
- 20) Educational posters, signs, brochures
- 21) Availability of tour guides
- 22) Availability of lifeguards for beach safety
- 23) Customer service and friendliness of
- 24) Public safety (areas with low crime rates)
- 25) Good maps and signage for road navigation

C3. Had you visited Puerto Rico more than five years ago?

- If "yes" answer question next set of questions
- If "no" skip to questions on expectancy and accomplishments .

Please rate how satisfied you were with each item five years ago. (Use radio buttons for responses dk=don't know, n/a=not applicable, 1=Not important, 2=Somewhat Important, 3=Important, 4=Very Important and 5=Extremely Important)

C4.

- 1) Clear water (high visibility)
- 2) Clean water healthy for swimming and other water-based activities.
- 3) Amount of living corals on the reefs.
- 4) Many different kinds of fishes and sea life to view
- 5) Many different kinds of fishes and sea life to catch
- 6) Control of invasive species (lionfish)
- 7) Enforcement of environmental laws and regulations.
- 8) Artificial reefs (sunken ships, reef balls, piers)
- 9) Easy, abundant and quality beach and shoreline access.
- 10) Marina facilities, boat ramps/launching facilities
- 11) Mooring buoys and navigational
- 12) Value of lodging (cost vs amenities: clean rooms & linens, working ac, hot shower)
- 13) Resorts with focus on Ecotourism/green initiatives: low energy use, recycling
- 14) Availability of public restrooms
- 15) Cleanliness of streets and sidewalks
- 16) Well-maintained roads and bridges
- 17) Public transportation
- 18) Parking
- 19) Historic preservation (historic landmarks, houses, etc.)
- 20) Educational posters, signs, brochures
- 21) Availability of tour guides
- 22) Availability of lifeguards for beach safety
- 23) Customer service and friendliness of
- 24) Public safety (areas with low crime rates)
- 25) Good maps and signage for road navigation

Here we want to know what your expectations were for the quality of the item below when you were planning your trip to Puerto Rico.

Please rate each item as it relates to the activities you did while in Puerto Rico. **(Use radio buttons n/a=Not applicable, dk=don't know, 1=Did not expect, 2=Small expectation, 3=Moderate expectation, 4=Large Expectation, 5=Very large expectation).**

- 1) Marina facilities
- 2) Availability of public restrooms.
- 3) Public transportation.
- 4) Parking
- 5) Cleanliness of streets and sidewalks
- 6) Boat ramps/launching facilities.
- 7) Well-maintained roads and bridges.
- 8) Value of lodging (cost vs amenities: clean rooms & linens, working ac, hot showers) showers)
- 9) Mooring buoys and navigational aids.
- 10) Good maps and signage for road navigation
- 11) Resorts with focus on Ecotourism/green initiatives: low energy use, recycling
- 12) Educational posters, signs, brochures.
- 13) Availability of lifeguards for beach safety
- 14) Easy, abundant, and quality beach & shoreline access
- 15) Enforcement of environmental laws & regulations
- 16) Public safety (area has low crime rates)
- 17) Customer service and friendliness of people
- 18) Availability of tour guides
- 19) Historic preservation (historic landmarks, houses, etc.)
- 20) Artificial reefs (sunken ships, reef balls, piers)
- 21) Quality restaurants
- 22) Clear water (high visibility).
- 23) Clean water healthy for swimming and other water-based activities.
- 24) Amount of living coral on the reefs.
- 25) Many kinds of fish and sealife to view.

C5.

EXPECTATIONS

ACCOMPLISHMENTS (WHAT YOU ACTUALLY EXPERIENCED)

Please rate each item for what you accomplished or actually experienced. (Use radio buttons n/a=Not applicable, dk=don't know, 1=Completely did not meet expectations, 2=Slightly met expectations, 3=met expectations, 4=Slightly exceeded expectations, 5=Completely exceeded expectations)

- 1) Marina facilities
- 2) Availability of public restrooms.
- 3) Public transportation.
- 4) Parking
- 5) Cleanliness of streets and sidewalks
- 6) Boat ramps/launching facilities.
- 7) Well-maintained roads and bridges.
- 8) Value of lodging (cost vs amenities: clean rooms & linens, working ac, hot showers) showers)
- 9) Mooring buoys and navigational aids.
- 10) Good maps and signage for road navigation
- 11) Resorts with focus on Ecotourism/green initiatives: low energy use, recycling
- 12) Educational posters, signs, brochures.
- 13) Availability of lifeguards for beach safety
- 14) Easy, abundant, and quality beach & shoreline access
- 15) Enforcement of environmental laws & regulations
- 16) Public safety (area has low crime rates)
- 17) Customer service and friendliness of people
- 18) Availability of tour guides
- 19) Historic preservation (historic landmarks, houses, etc.)
- 20) Artificial reefs (sunken ships, reef balls, piers)
- 21) Quality restaurants
- 22) Clear water (high visibility).
- 23) Clean water healthy for swimming and other water-based activities.
- 24) Amount of living corals on the reefs.
- 25) Many kinds of fish and sealife to view.

C6.

SPECIAL ISSUES

Here we have some questions addressing special local issues in Puerto Rico.

C7.

a. Do you own a boat in Puerto Rico?

- Yes (Continue) No (Go to Question d)

b. What is the length of your boat?

_____ (Feet)

c. Do you trailer your boat or do you store it at a dock or marina?

- Trailer
 Store at a dock or marina

d. Do you own or rent a vacation home on the coast with access to the water?

- Yes No

e. How important were Puerto Rico's beaches to your decision to visit Puerto Rico?

- | | | | | |
|---------------|--------------------|-----------|-----------------|---------------------|
| Not Important | Somewhat Important | Important | Veryt Important | Extremely Important |
| 1 | 2 | 3 | 4 | 5 |

f. Was this trip your first visit to Puerto Rico for recreation activities?

- Yes (Go to Question IVa) No (Continue)

g. How many years have you been coming to Puerto Rico for recreation activities?

h. How likely is it that you will recommend Puerto Rico to a friend or family member for their next vacation? **(Use radio buttons dk=Don't know, 1=Will not recommend, 2=Somewhat Likely, 3=Likely, 4=Very Likely, 5=Will Recommend)**

i. How likely is it that you will return to Puerto Rico for a visit? **(Use radio buttons dk=Don't know, 1=Will not Return, 2=Somewhat Likely, 3=Likely, 4=Very Likely, 5=Will return)**

j. How soon will you return?

- | | |
|-----------------------|--------------------------|
| Don't Know | <input type="checkbox"/> |
| In less than 3 months | <input type="checkbox"/> |
| 3 to 6 months | <input type="checkbox"/> |
| 6 to 12 months | <input type="checkbox"/> |
| Greater than one year | <input type="checkbox"/> |

k. On your first visit ever to Puerto Rico, was your visit on a cruise ship stopover?

- Yes No (Skip to Section VI)

L. Did your stopover experience in Puerto Rico result in you choosing Puerto Rico as a destination for a non cruise ship visit?

- Yes No

m. If this cruise ship visit was your first visit, did your experience lead you to think about planning a future non cruise ship visit to Puerto Rico?

- Yes No

n. Islands like Puerto Rico face competing demands for development. When choosing a destination for your vacation and/or recreation activities what is your preference? (Check one answer only)

- Low development, small town atmosphere along the coast
- Dense development, large town with high-rise hotels and casinos, many restaurant and shopping opportunities
- Mix of low development and dense development places
- No preference

o. Some people may be okay with staying in dense developed areas, but when doing certain recreation activities like visiting beaches, fishing, SCUBA diving, snorkeling, boating, surfing, wind surfing, paddle boarding, viewing wildlife, photography and hiking trails prefer to have views unobstructed by development (e.g. big hotels, offshore oil and gas platforms, wind turbines etc.).

How important to you is it to have areas with natural views protected? (Check one answer only)

- Not important
- Somewhat Important
- Important
- Very important
- Extremely important

In this next set of questions, we want to ask you about several issues of importance in managing Puerto Rico's natural resources that support recreation activities or protect resources by preservation methods.

Please indicate your level of agreement with each of the statements below. **(Use radio buttons 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree).**

C8.

- 1) I support the creation of marine protected areas that allow activities as long as the activities don't harm the resource.
- 2) I support the creation of marine reserves that prohibit all activities that take things like fishing and ornamental trade for aquariums.

- 3) I support the creation of research only areas that only allow scientific and educational activities.
- 3) I support increased protection of threatened and endangered species like turtles and Elkhorn and Staghorn corals.
- 5) I support increased enforcement of environmental laws and regulations
- 6) I support increased education and outreach for violators of environmental laws and regulations.
- 7) I support a mixed approach to using education and outreach and enforcement on violators of environmental laws and regulations.
- 8) I support more coral nurseries to help restore coral reefs.

PART D. Expenditures

Section 1 – TRIP EXPENDITURES

Here we would like to ask you about the expenses related to the most recent trip to do recreation activities on Puerto Rico's coral reefs (the trip when we interviewed you).

Please complete one of the questions below, indicating for how many people you paid expenses.

D1-1a. If you paid your own expenses or if you shared expenses with someone else, please check this box (**radio button**).

D1-1b. If you were paying all the expenses for yourself and for one or more others, please check this box (**radio button**).

D1-2. Number of people you were paying expenses for including yourself. _____

D1-3. For which of the following items did you have expenditures on your last trip. (**use radio buttons, in next section on expenditure amounts only ask for expenditures categories selected here**).

Trip expenditures include expenditures you made while at home planning the trip and expenditures you made in Puerto Rico.

LODGING, PRIVATELY OWNED (NON-GOVERNMENT)

Hotel/motel/bed & breakfast, etc.

Rental home, cottage, cabin, condo

Camping site (RV/tent/camper)

FOOD & BEVERAGES

Food and drinks consumed at restaurants and bars

Drinks consumed at bars and clubs during non-meal times (nighttime recreation)

Food & Beverages purchased at a store for carryout

TRANSPORTATION

Rental automobile, motor home, trailer, motorcycle or other recreation vehicle

Gas & oil – auto/RV

Repair & service – auto/RV

Parking fees & tolls

Taxi fare

Ferry

Train

Airline Fare

a. Package tour

b. Any other airline fare

BOATING

Boat, jet ski, and wave runner rental

Boat fuel and oil

Boat repairs

Boat launch fees

Boat slip fees or marine fees (this trip only)

Sailing charters or sunset cruises

FISHING

Cut bait

Live bait

Daily or special fishing permits

Fishing lines, fly lines, fishnets, and minnow traps

Charter/party boat, guide service

SCUBA DIVING/SNORKELING

Rental fee for equipment

Charter/party boat, guide service

SIGHTSEEING

Sightseeing tours

Glass-bottom boat rides

Excursions, kayak tours

Park entrance fees

Admission to tourist, amusement, festivals and other commercial attractions

Food and drinks on sightseeing tours

OTHER ACTIVITY EXPENDITURES

Rental fee for recreation equipment (surfboards, paddleboards, kite boards,
Golf carts, or others not listed above)

Guide service, tour, or outfitters (not listed above)

Admission to motion pictures, theaters, museums, musical performances, concerts, etc.

Admission to musical performances, concerts (not listed above)

Spa treatments

Fitness activities (gym fees, fitness classes/instruction)

MISCELLANEOUS EXPENDITURES

Film purchases

Film developing

Footwear

Clothing

Souvenirs and gifts (not clothing)

Barber, laundry, and other personal services

Telephone, copying, fax or other business services

Physician, dentist, or other medical services

Other, Specify _____

Next you will be asked your expenditures for each of the items where you said you made expenditures.

Please report your expenditures for each of the items to the nearest whole dollar. In Column A, put the total amount of money you spent on the item, regardless of where you spent it. In Column B, report only the amount

Section 2 – ANNUAL VACATION EXPENDITURES AND EQUIPMENT PURCHASES

This section asks about money people spent on recreational equipment, boat storage, time-share and condo fees and related purchases for items you own over the past 12 months. Do not include expenditures for rentals since they were included in Section 1.

D2-1. During the past 12 months, how many times did you take a trip away from home for a boating-related activity (sailing, waterskiing, canoeing, fishing from a boat, motor boating, SCUBA diving, jet skiing, etc.)? _____ (number of times)

D2-2. Of these trips, how many were to some place outside Puerto Rico? _____ (number of times)

D2-3.

For which of the following items have you made a purchase or made an expenditure in the past 12 months. Please include purchases you made anywhere. (**radio buttons to be programmed for next section**).

MAJOR RECREATIONAL EQUIPMENT (not rentals)

Diving or snorkeling equipment

Fishing rods and reels

Cameras and other photo gear

Binoculars and other viewing equipment

BOATING EQUIPMENT AND FEES (not rentals)

New motorized boats or jet skis/wave runners

New non-motorized boats (sailboats, row boats, canoes, kayaks, etc.)

New boat engines

New sails or rigging

New boat trailer

Boat storage and marina fees

Other boating expenses

Describe: _____

ANNUAL LODGING-RELATED FEES

Condo and time-share fees

RV or trailer park fees

D2-4 For each of the items where you made purchases or expenditures, indicate in Column A the total amount of money you spent on that equipment in the past 12 months. In Column B, report the total amount of purchases you made just in the county or city where you live. In Column C, report the total amount of purchases you made in Puerto Rico.

EXAMPLE: Joe and Jane Smith purchased a boat for \$17,000 from a dealer at their home in New York last summer. They also purchased a jet ski for \$12,000 from a dealer in Puerto Rico. Here is how they would report these expenditures.

Item	Column A: Total purchases in past 12 months	Column B: Purchases in home county or city	Column C: Purchases in Puerto Rico
BOATING EQUIPMENT			
New motorized boats or jet skis	29,000	17,000	12,000

Item	Column A: Total purchases in past 12 months	Column B: Purchases in home county or city.	Column C: Purchases in Puerto Rico

PART E: Economic Valuation of Puerto Rico’s Coral Reef Ecosystems

In this section of the survey, we will first present to you some definitions and scientific facts about Puerto Rico’s coral reef ecosystems. We will then present you with different reef conditions and the cost to your household to achieve those conditions. We will then ask you to choose among a set of different conditions and the cost to your household. You can think of this like you think about buying a car or a house, which would have many different features at different costs.

First, here are some photographs of the kinds of features or attributes one might see on Puerto Rico’s coral reef ecosystems.

(put in photos).

Here are some definitions of what we mean by coral reefs and coral reef ecosystems; what the conditions of coral reefs are; the current and future health of Puerto Rico’s coral reef ecosystems; and the problems and possible management solutions.

Definitions

- **Coral reefs are colonies of connected skeletons of millions of small animals called corals.**
- **Coral reef ecosystems include the coral reefs, neighboring areas of sea bottom, ocean waters, sponges, algae, seagrasses and mangroves.**
- **Coral reef ecosystems provide a place to live for many ocean species including, fish, sea turtles, conchs, lobsters, crabs, sponges, urchins, sea plants and marine mammals like dolphins and manatees.**
- **Most coral reef ecosystems in Puerto Rico are in water less than 60 feet deep.**

Conditions

- Research by the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) has measured the abundance and diversity (number of different species) of stony corals, soft corals, sponges, fish, and macroinvertebrates (conch, spiny lobster, and urchins) on Puerto Rico's coral reefs.
- Measures of abundance and diversity were measured on how much was there per square meter of coral reef area.
- For abundance, the following measures were taken:
 - Stony corals: Percent (%) of hard-bottom covered per square meter and percent of the coral tissue is alive.
 - Soft corals and Sponges: Square centimeters per square meter of reef area.
 - Fish: Number per square meter.

Fish were classified into fish people eat (consumptive) and fish that people just view (Tropical/Ornamental fish). A few fish that normally would be classified as consumptive were not counted as consumptive because of ciguatera poisoning. Fish were also classified as Sport/Trophy fish (Ladyfish, Permit, Bonefish, Tarpon, Barracuda, Jacks). Some of these may be known to have ciguatera poisoning but are still fun to catch.

- Consumptive fish: Puerto Rico has only a few species with limits on length to be legal for keeping (Yellowtail Snapper, White Grunt, Silk Snapper, and Black Snapper). Some are permanently closed to fishing (Nassau Grouper and Goliath Grouper). Still others have closed seasons (Silk, Vermillion, Black and Blackfin Snappers Oct. – Dec.; Mutton and Lane Snappers April-May; Red Hind Dec. – Feb.). We present the number of consumptive fish that meet legal size for keeping per square meter of reef area.
- Tropical/Ornamental fish: Number of fish per square meter.
- Sport/Trophy fish: Opportunity to catch or see trophy fish on the entire reef not the number per square meter.
- Macroinvertebrates (conchs, spiny lobsters, and urchins): The number per square meter. For conchs, the maximum number observed was 3 per square meter, while for spiny lobster, the maximum observed was 1 per square meter. Urchins tend to be observed in much higher numbers. For Long-spined urchins, the maximum observed was 8 per square meter, while for smaller species of urchins as many as 37 per square meter have been observed. Seasonal closure of Queen Conch is July – Sept.

Health of the Reefs

- **Urchins are known to increase the health of reefs for stony corals.**
- **Stony corals predominate in the healthiest reefs.**
- **Soft Corals and Sponges tend to dominate in reef areas where the water quality is relatively poor. Scientists have found that soft corals and sponges are more able than stony corals to thrive in relatively poor water quality and move into places where stony corals have died.**
- **Soft Corals and Sponges are often very colorful, serve as important habitat for fish, and help improve water quality by filtering nutrients thereby reducing algal growth that can smother reefs and improving water clarity/visibility**
- **Most of the coral reef ecosystems in Puerto Rico are currently in a poor or fair condition. Overfishing, water pollution, careless anchoring, and sediments from runoff from development and agricultural areas have been the most important factors damaging the coral reef ecosystems.**

Problems and Management Solutions

- **If current management practices continue in the future (Status Quo), in 10 to 20 years scientists expect that all but the few areas that are receiving special protection will be in a poor or low condition with respect to the corals, sponges, fish, and water clarity/visibility. If rules and regulations are not enforced even the specially protected areas will be in poor or low condition.**
- **If management is changed to improve reef conditions, it will require both public and private investments to protect and restore the coral reef ecosystems, which would include enforcement of rules and regulations.**
- **In the next section of the survey, you will be presented with several sets of coral reef ecosystem conditions. There is an estimated cost to your household per trip that would be required to achieve each condition.**
- **The cost per trip is based on the costs that will be paid by businesses and households to pay for investments that protect and restore the coral reef ecosystems like improved sewage treatment, filtering and cleaning urban run-off, erosion control from agricultural areas and development projects, installation of mooring buoys to protect reefs from anchor damage, restoration of reefs, and enforcement of rules and regulations.**
- **The costs per trip would be paid by all residents and visitors to Puerto Rico through increased prices of goods and services. This might also include increases in local sales taxes to cover government costs to pay for protection and restoration.**

- **The Option A: Status Quo (No change in management), will cost your household nothing (\$0 per trip), but will result in low reef conditions on all of Puerto Rico's coral reef ecosystems, except for the few specially protected areas if rules and regulations are enforced.**
- **You will always have the option of choosing the Status Quo (Option A).**

Before we get started on presenting to you the choices we are asking you to make, here are three illustrations showing coral reef ecosystem conditions where all conditions are at a high level, a medium level and a low level. You will be presented with different mixes of these conditions for different attributes of the reefs and the corresponding costs to your household of achieving these conditions.

Insert illustrations

Low, Medium and High Conditions for Reefs

Crowding: Beaches and Reefs

E1. Did you believe the information by coral scientists that in 10 to 20 years if current management practices continue that nearly all the coral reefs in Puerto Rico would be in a poor or low condition?

- Yes
- No (Go to C4)

E2. If we don't change current management practices (Status Quo), do you think that the coral reefs conditions in 10 to 20 years in Puerto Rico will

- Stay the same
- Improve
- Worsen

- **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.**

Choice 1

Option A: Status Quo – No changes in management	Option B: Coral Reefs In Medium Level of Condition	Option C: Coral Reefs in High Level of Condition
Corals and Sponges	Corals and Sponges	Corals and Sponges
No stony corals, only soft corals and sponges	Up to 4 species of stony corals covering 5 to 20% of hard-bottom with 60 to 90% live coral tissue.	5 to 17 species of stony corals covering more than 20% and up to 100% of hard-bottom with over 90% to 100% live coral tissue.
Up to 4 species of soft corals for a total of 14 to 25 square centimeters per square meter	Up to 3 species of soft corals for a total of 4 to 14 square centimeters per square meter.	1 species of soft corals for a total of less than 4 square centimeters per square meter.
Up to 4 species of sponges for a total of 7 to 15 square centimeters per square meter	Up to 3 species of sponges for a total of 2 to 7 square centimeters per square meter.	1 species of sponges for a total of less than 2 square centimeters per square meter.
Fish and Wildlife	Fish and Wildlife	Fish and Wildlife
Up to two species of consumptive fish for a total of 3 fish per square meter with no fish of legal size to keep	3 to 6 species of consumptive fish for a total of 10 fish per square meter with up to 50% of legal size to keep.	Up to 15 species of consumptive fish for a total of 100 or more fish per square meter with 75 to 100% of legal size to keep.
Up to 3 species of tropical/ornamental fish with a total of 3 fish per square meter	4 to 10 species of tropical/ornamental fish with a total of 10 fish per square meter.	25 to 30 species of tropical/ornamental fish for a total of 20 to 100 or more fish per square meter.
No Macroinvertebrates (conch, lobster or urchins)	1 species of Macroinvertebrates (urchins) with 1 to 20 per square meter.	2 or more species of Macroinvertebrates (conch, lobster or urchins) with 20 or more per square meter (mostly urchins).
No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	Opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)
No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)	No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)	Opportunity to catch or see Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)
Water Conditions	Water Conditions	Water Conditions
Clarity/Visibility: Less than 10 feet	Clarity/Visibility: 10 to 50 feet	Clarity/Visibility: Greater than 50 feet
Cleanliness: Not healthy for swimming	Cleanliness: healthy for swimming	Cleanliness: healthy for swimming
Depth of Reefs: Greater than 60 feet	Depth of Reefs: 20 to 60 feet	Depth of Reefs: less than 20 feet
Crowdedness: 21 or more people	Crowdedness: 11 to 20 people	Crowdedness: 0 to 10 people
\$0	\$	\$
(Cost to your household per trip)	(Cost to your household per trip)	(Cost to your household per trip)

E3. Which option do you prefer? ___A ___B ___C

E4. How many days would you use Puerto Rico’s Coral reefs under the reef conditions for the option you preferred? ____ (number of days)

E5. Please provide a brief comment that helps us to understand why you chose the option you most preferred.

E6. How sure are you that the option you chose as your most preferred among the three options is your most preferred (radio buttons 1=not sure at all, 2=slightly sure, 3=moderately sure, 4=very sure, 5=extremely sure)

Choice 2

Option A: Status Quo – No changes in management	Option B: 6M & 6H	Option C: 6H & 6M
Corals and Sponges	Corals and Sponges	Corals and Sponges
No stony corals, only soft corals and sponges	M: Up to 4 species of stony corals covering 5 to 20% of hard-bottom with 60 to 90% live coral tissue.	H: 5 to 17 species of stony corals covering more than 20% and up to 100% of hard-bottom with over 90% to 100% live coral tissue.
Up to 4 species of soft corals for a total of 14 to 25 square centimeters per square meter	M: Up to 3 species of soft corals for a total of 4 to 14 square centimeters per square meter.	H: 1 species of soft corals for a total of less than 4 square centimeters per square meter.
Up to 4 species of sponges for a total of 7 to 15 square centimeters per square meter	M: Up to 3 species of sponges for a total of 2 to 7 square centimeters per square meter.	H: 1 species of sponges for a total of less than 2 square centimeters per square meter.
Fish and Wildlife	Fish and Wildlife	Fish and Wildlife
Up to two species of consumptive fish for a total of 3 fish per square meter with no fish of legal size to keep	M: 3 to 6 species of consumptive fish for a total of 10 fish per square meter with up to 50% of legal size to keep.	H: Up to 15 species of consumptive fish for a total of 100 or more fish per square meter with 75 to 100% of legal size to keep.
Up to 3 species of tropical/ornamental fish with a total of 3 fish per square meter	M: 4 to 10 species of tropical/ornamental fish with a total of 10 fish per square meter.	H: 25 to 30 species of tropical/ornamental fish for a total of 20 to 100 or more fish per square meter.
No Macroinvertebrates (conch, lobster or urchins)	M: 1 species of Macroinvertebrates (urchins) with 1 to 20 per square meter.	H: 2 or more species of Macroinvertebrates (conch, lobster or urchins) with 20 or more per square meter (mostly urchins).
No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	H: Opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	M: No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)
No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)	H: Opportunity to catch or see Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)	M: No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)
Water Conditions	Water Conditions	Water Conditions
Clarity/Visibility: Less than 10 feet	H: Clarity/Visibility: Greater than 50 feet	M: Clarity/Visibility: 10 to 50 feet
Cleanliness: Not healthy for swimming	H: Cleanliness: Healthy for swimming	M: Cleanliness: Healthy for swimming
Depth of Reefs: Greater than	H: Depth of Reefs: Less than	M: Depth of Reefs: 20 to 60

60 feet	20 feet	feet
Crowdedness: 21 or more people	H: Crowdedness: 0 to 10 people	M: Crowdedness: 11 to 20 people
\$0	\$	\$
(Cost to your household per trip)	(Cost to your household per trip)	(Cost to your household per trip)

E7. Which option do you prefer? ___A ___B ___C

E8. How many days would you use Puerto Rico's Coral reefs under the reef conditions for the option you preferred? ____ (number of days)

E9. Please provide a brief comment that helps us to understand why you chose the option you most preferred.

E10. How sure are you that the option you chose as your most preferred among the three options is your most preferred (radio buttons 1=not sure at all, 2=slightly sure, 3=moderately sure, 4=very sure, 5=extremely sure)

Choice 3

Option A: Status Quo – No changes in management	Option B: 6L and 6H	Option C: 6 H and 6L
Corals and Sponges	Corals and Sponges	Corals and Sponges
No stony corals, only soft corals and sponges	L: No stony corals, only soft corals and sponges	H: 5 to 17 species of stony corals covering more than 20% and up to 100% of hard-bottom with over 90% to 100% live coral tissue.
Up to 4 species of soft corals for a total of 14 to 25 square centimeters per square meter	L: Up to 4 species of soft corals for a total of 14 to 25 square centimeters per square meter	H: 1 species of soft corals for a total of less than 4 square centimeters per square meter.
Up to 4 species of sponges for a total of 7 to 15 square centimeters per square meter	L: Up to 4 species of sponges for a total of 7 to 15 square centimeters per square meter	H: 1 species of sponges for a total of less than 2 square centimeters per square meter.
Fish and Wildlife	Fish and Wildlife	Fish and Wildlife
Up to two species of consumptive fish for a total of 3 fish per square meter with no fish of legal size to keep	L: Up to two species of consumptive fish for a total of 3 fish per square meter with no fish of legal size to keep	H: Up to 15 species of consumptive fish for a total of 100 or more fish per square meter with 75 to 100% of legal size to keep.
Up to 3 species of tropical/ornamental fish with a total of 3 fish per square meter	L: Up to 3 species of tropical/ornamental fish with a total of 3 fish per square meter	H: 25 to 30 species of tropical/ornamental fish for a total of 20 to 100 or more fish per square meter.
No Macroinvertebrates (conch, lobster or urchins)	L: No Macroinvertebrates (conch, lobster or urchins)	H: 2 or more species of Macroinvertebrates (conch, lobster or urchins) with 20 or more per square meter (mostly urchins).
No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	H: Opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	L: No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)
No opportunity to see or catch Sport/Trophy fish (ladyfish,	H: Opportunity to catch or see Sport/Trophy fish (ladyfish,	L: No opportunity to see or catch Sport/Trophy fish

permit, bonefish, tarpon, snook, jacks)	permit, bonefish, tarpon, snook, jacks)	(ladyfish, permit, bonefish, tarpon, snook, jacks)
Water Conditions	Water Conditions	Water Conditions
Clarity/Visibility: Less than 10 feet	H: Clarity/Visibility: Greater than 50 feet	L: Clarity/Visibility: Less than 10 feet
Cleanliness: Not healthy for swimming	H: Cleanliness: Healthy for swimming	L: Cleanliness: Not healthy for swimming
Depth of Reefs: Greater than 60 feet	H: Depth of Reefs: less than 20 feet	L: Depth of Reefs: Greater than 60 feet
Crowdedness: 21 or more people	H: Crowdedness: 0 to 10 people	L: Crowdedness: 21 or more people
\$0	\$	\$
(Cost to your household per trip)	(Cost to your household per trip)	(Cost to your household per trip)

E11. Which option do you prefer? ___A ___B ___C

E12. How many days would you use Puerto Rico's Coral reefs under the reef conditions for the option you preferred? ____ (number of days)

E13. Please provide a brief comment that helps us to understand why you chose the option you most preferred.

E14. How sure are you that the option you chose as your most preferred among the three options is your most preferred (radio buttons 1=not sure at all, 2=slightly sure, 3=moderately sure, 4=very sure, 5=extremely sure)

Choice 4

Option A: Status Quo – No changes in management	Option B: 6L and 6 M	Option C: 6M and 6 L
Corals and Sponges	Corals and Sponges	Corals and Sponges
No stony corals, only soft corals and sponges	L: No stony corals, only soft corals and sponges	M: Up to 4 species of stony corals covering 5 to 20% of hard-bottom with 60 to 90% live coral tissue.
Up to 4 species of soft corals for a total of 14 to 25 square centimeters per square meter	L: Up to 4 species of soft corals for a total of 14 to 25 square centimeters per square meter	M: Up to 3 species of soft corals for a total of 4 to 14 square centimeters per square meter
Up to 4 species of sponges for a total of 7 to 15 square centimeters per square meter	L: Up to 4 species of sponges for a total of 7 to 15 square centimeters per square meter	M: Up to 3 species of sponges for a total of 2 to 7 square centimeters per square meter.
Fish and Wildlife	Fish and Wildlife	Fish and Wildlife
Up to two species of consumptive fish for a total of 3 fish per square meter with no fish of legal size to keep	L: Up to two species of consumptive fish for a total of 3 fish per square meter with no fish of legal size to keep	M: 3 to 6 species of consumptive fish for a total of 10 fish per square meter with up to 50% of legal size to keep.
Up to 3 species of tropical/ornamental fish with a total of 3 fish per square meter	L: Up to 3 species of tropical/ornamental fish with a total of 3 fish per square meter	M: 4 to 10 species of tropical/ornamental fish with a total of 10 fish per square meter.
No Macroinvertebrates (conch, lobster or urchins)	L: No Macroinvertebrates (conch, lobster or urchins)	M: 1 species of Macroinvertebrates (urchins)

		with 1 to 20 per square meter.
No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	M: No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)	L: No opportunity to see large wildlife (sharks, rays, turtles, manatees, dolphins)
No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)	M: No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)	L: No opportunity to see or catch Sport/Trophy fish (ladyfish, permit, bonefish, tarpon, snook, jacks)
Water Conditions	Water Conditions	Water Conditions
Clarity/Visibility: Less than 10 feet	M: Clarity/Visibility: 10 to 50 feet	L: Clarity/Visibility: Less than 10 feet
Cleanliness: Not healthy for swimming	M: Cleanliness: Healthy for swimming	L: Cleanliness: Not healthy for swimming
Depth of Reefs: Greater than 60 feet	M: Depth of Reefs: 20 to 60 feet	L: Depth of Reefs: Greater than 60 feet
Crowdedness: 21 or more people	M: Crowdedness: 11 to 20 people	L: Crowdedness: 21 or more people
\$0	\$	\$
(Cost to your household per trip)	(Cost to your household per trip)	(Cost to your household per trip)

E15. Which option do you prefer? ___A ___B ___C

E16. How many days would you use Puerto Rico's Coral reefs under the reef conditions for the option you preferred? ____ (number of days)

E17. Please provide a brief comment that helps us to understand why you chose the option you most preferred.

E18. How sure are you that the option you chose as your most preferred among the three options is your most preferred (radio buttons 1=not sure at all, 2=slightly sure, 3=moderately sure, 4=very sure, 5=extremely sure)

E19. Did you understand that the dollar amount for each alternative was the per trip cost to your household?
a. Yes
b. No.

E20. There are different ways for people to pay for new programs to protect the environment. One way is for the government to pay the cost. This will raise everyone's taxes. Another way is for the government to create incentives for investment in environmental protection. Still another way is for businesses to pay the cost. This will make prices go up for everyone.

If you had to choose, would you prefer to pay for new environmental programs through higher taxes, the cost of incentives to businesses and households, or through higher prices? (**radio buttons 1=though higher taxes, 2=through the cost of incentives to businesses and households, 3=through higher prices, 4=no preference**).

E21. Who do you think should manage the additional funding obtained for reef management? (**radio buttons 1=Federal government, 2=Territorial government, 3=Non-government Organization like The Nature Conservancy or Protectores de Cuencas, a local organization, 4= Other (specify)_____**)

E22. Would you say you think of yourself as (**radio buttons 1=not an environmentalist at all, 2=slightly an environmentalist, 3=moderate environmentalist, 4=a strong environmentalist, 5=very strong environmentalist**).

E23. We would like to learn more about how you reacted to the questions that asked you to choose between various options of reef conditions. For each of the statement below, tells us how strongly you agree or disagree with each statement. **(use radio buttons 1=Strongly Disagree, 2=Somewhat Disagree, 3=Neither Agree of Disagree, 4=Somewhat Agree, 5=Strongly Agree).**

E23a. Costs should not be a factor when protecting the environment.

E23b. I found it difficult to select an option of reef conditions I preferred.

E23c. I was concerned that the Puerto Rico government cannot effectively manage coral reefs.

E23d. I should not have to pay more to protect or restore coral reefs in Puerto Rico.

E23e. The public's views as expressed in this survey should be important to the Puerto Rico government when it chooses how to manage coral reefs.

E23f. I understood the different alternatives presented in each choice question.

E23g. The different reef attribute levels in each alternative were clear and I was able to distinguish the difference across the "Status Quo" and alternatives B and C in making my choices.

E23h. The illustrations of coral reef conditions of coral reef conditions helped me distinguish low, medium and high conditions for all reef attributes.

E23i. The pictures of different crowding conditions helped me distinguish low, medium and high crowding conditions.

E23j. The government should use incentives to businesses and households to pay for environmental protections instead of regulations that result in higher prices or taxes to businesses and households.

E24. What condition are the reefs in that you personally visit or use?

1 = low

2 = medium

3 = high

E25. How certain are you that additional funding would achieve the goals of protecting the environment?

1 = very uncertain

2 = uncertain

3 = somewhat certain

4 = certain

5 = very certain

E26. Please provide us any comments you would like to make to help us understand your views about coral reefs in Puerto Rico and your Responses to this survey.

THANK YOU that concludes our survey. You will be entered into the sweepstakes/lottery to win a free vacation and other prizes. If your contact information changes, you can send your new information to Miguel.delpozo@upr.edu. Your contact information will be destroyed after the prizes are awarded.