

# Questionnaire: Orange County Rocky Intertidal Zone

Double-Bounded CV

Interviewer	Location
Date	Start Time

Good Morning/Afternoon, My name is \_\_\_\_\_ and I am a graduate student in the Department of Economics at California State University, Long Beach/Fullerton. We are conducting a research project and I was wondering if you would answer some questions for me. If yes, ...

As a research project, we are interviewing people about Orange County beaches. All individual answers to questions will be treated as confidential.

Are you over 18 years old? \_\_\_Yes \_\_\_No Do you live in California? \_\_\_Yes \_\_\_No  
 Is this beach close enough to your home to be a day trip? ? \_\_\_Yes \_\_\_No Proceed if over 18 and the respondent lives in the LA area. Keep track of the number that live too far to interview.

Hand **CARDS** to respondent. "Please do not flip through the pages until I ask you to, but follow along with the interview as I share information relevant to each part of the interview."

## Section A: Programs Affecting Attributes of The Coast

### Now Please Look at Card A

These are just a few of the programs for which cities, Orange County, the State of California, and the Federal Government spend tax money:

Maintain Beach Cleanliness; Maintain/Improve Marine Wildlife Habitat; Maintain/Improve Parks and Greenbelt; Marine Safety; Protect Wildlife; Lifeguards at Beaches. **SEE CARD A**

Q1: For each item on **CARD A**, is this issue not important at all to you personally, not too important, somewhat important, very important, or extremely important?

	1. not important at all	2. not too important	3. somewhat important	4. very important	5. extremely important
a. Maintain Beach Cleanliness					
b. Maintain/Improve Marine Wildlife Habitat					
c. Maintain/Improve Parks and Greenbelt					
d. Marine Safety/Coast Guard					
e. Protect Terrestrial Wildlife					
f. Lifeguards at Beaches					

Proposals are sometimes made for new programs, but additional programs have additional costs that require funding.

One way to find out about this is to give people like you information about a program so that you can make up your own mind about it.

Your views are important to decision makers when deciding what, if anything, to do about a particular situation.

In interviews of this kind, some people think that the program they are asked about is not needed; others think that it is. We want to know what you think.

I am going to ask you about a program that intends to increase the abundance and diversity of marine plant and animal life of Orange county beaches in the intertidal Zone (the area between the high and low tides, including tidepools).

## Section B: Recreation Participation and Intensity

I will begin with some background information. Then I will ask you whether you think this particular program is worthwhile and why you feel the way you do.

### Now Please Look at Card B

Q2: In what recreational activities have you participated at Orange County beaches during the past 12 months? (circle all that apply) fishing, tide-pooling, sunbathing, sitting, walking, bird-watching, swimming, diving, snorkeling, surfing

**CARD B:** Side 1 – fishing, tide-pooling, sunbathing, sitting, walking, bird-watching, swimming, diving, snorkeling, surfing.

**CARD B** Side 2 – Map of Orange County beaches

Q3: About how many trips did you take during the last 12 months? \_\_\_\_\_ If None skip Q4.

Q4: Which Beaches?

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Q6: Do you plan any trips during the next 12 months? \_\_\_\_\_

Q5: About how many trips will you take during the next 12 months? \_\_\_\_\_

### Now Please Look at Card C

Q7: Other than Orange County beaches, did you participate in any outdoor recreation activities during the past 12 months? \_\_\_\_\_ Yes \_\_\_\_\_ No If No skip to Q10.

**CARD C:** Side 1 – mountains, lakes, rivers, beaches. Side 2 – Southern California Map

Q8: Where did you go?				
Q9: How long did you stay?				

Q10: How many trips will you take during the next 12 months? \_\_\_\_\_

## Section C: Contingent Valuation – Stress and Shock to Ecosystem

Along the Orange County coast, there are three different types of shoreline

- Wetlands
- Rocky Shorelines
- Sandy Beaches

I want to describe Orange County's Intertidal Zones, the portion of land that is uncovered at low tide, but is covered during high tide conditions.

**Now Please Look at Card D**

**CARD D – Side 1:** This is a picture taken from the Treasure Island Intertidal Zone, showing the nearby beach within the City of Laguna Beach. It is representative of other rocky intertidal zones in Orange County. **Side 2:** These are pictures of the Treasure Island Intertidal Zone.

We want to learn more about the value users of coastal resources place on the rocky intertidal zone.

California's coastal resources are intensely used for recreational, scientific, educational, and commercial purposes<sup>1</sup>. Human activities, including lawful and unlawful harvesting, visitor foot traffic, and human movement of plants and marine animals are impacting the rocky intertidal ecosystems throughout the state.

**Now Please Look at Cards E and F**

**CARDS E and F:** These cards show some types of animal and plant organisms that make their home in the intertidal zone.

Q11: Are you familiar with any of the organisms in the intertidal zone?

Yes     No     Not Sure

According to marine biologists, none of these organisms is in danger of becoming extinct.

Let me describe three common organisms:

Owl limpets (*Lottia gigantea* Sowerby) change sex from male to female with age. Therefore, harvesting of larger, and presumably older, individuals removes the females, altering the reproductive capacity of this species. A similar species is the Fingered Limpet.

(POINT TO FINGERED LIMPETS ON **CARD E**)

Research shows that many marine animal organisms, such as those shown on the card, are susceptible to damage from visitor foot traffic and illegal takings.

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<sup>1</sup> The marine biology content of this questionnaire is from:

Steven N. Murray, "Effectiveness of Marine Life Refuges on Southern California Shores," Department of Biological Science, California State University, Fullerton, P.O. Box 6850, Fullerton, CA 92834-6850.

Please look at organism #1 on **CARD F**:

Mussels (*Mytilus californianus* Conrad) generally form dense beds in the intertidal zone, with individual animals fastened to the rocks and linked to each other by tough strands of protein. They form habitat for a high diversity of marine life, which lives within and is dependent on the bed. According to a scientific study, one of the most frequently observed forms of harvesting on local shores was the removal and use of mussels for fishing bait and food.

Please look at organism #2 on **CARD F**:

Rockweeds (*Pelvetia compressa* and *Herperophycus californicus*) and other canopy-forming seaweeds provide important habitat for numerous species of algae and invertebrates throughout southern California, and have been found to be particularly vulnerable to human foot traffic.

According to marine biologists, none of these marine plants or animals is in immediate danger of becoming extinct. However, a reduction in the local quality or size of these organisms affects the rest of the marine environment. The overall impact of degradation of abundance and diversity of intertidal zone life is that it negatively affects the food chain.

Reminder: I would like to remind you that our primary concern is plant and organism life within the rocky intertidal zone, not air, water, or beach pollution.

## Section D: Description and Attributes of Rocky Intertidal Zone – Policy Options, Payment Mechanisms, Willingness to Pay

Q12: Do you feel that the habitat I have described has a value to today's society or future generations and is worth protecting?

Yes     No     Not Sure

There are 21 designated "California Marine Life Refuges" (CMLRs) along the California coast. These public areas are designated, but lack enforcement by the California Department of Fish and Game, a state agency, which is responsible for protecting natural habitats in the ocean's intertidal zone.

Some areas (such as in Laguna Beach) have had marine refuge protection for more than 25 years. However, recent scientific studies suggest that the intertidal zones in many Marine Refuges are not much healthier than non-refuge sites. A reason is believed to be poor enforcement of the Marine Refuge regulations.

**Now Please Look at Card G side 1**

Present Marine Refuge regulations are – **CARD G side 1**

- Recreational fishing is allowed
- It is unlawful to collect or harvest most species of invertebrates\* and marine plants
- Except for collecting and harvesting organisms, there are no restrictions on visitor access or most forms of recreational activity.

\*Instead of internal backbones, they have external shells like clams or crabs.

Presently, beach lifeguards in some areas pass out Ecological Advisements to people engaging in ecologically damaging activity within the intertidal zones. These Advisements are not legally enforced.

So, two problems have been identified. One is lack of sufficient funding for enforcement of existing regulations to avoid illegal harvesting and collecting. The other is damage to ecosystems from trampling and overuse.

### **Now Please Look at Card G side 2**

One proposal is to create a Marine Wildlife Protection Fund financed by taxes. Proceeds from this fund would pay for greater enforcement of marine wildlife regulations, and more intensive enforcement of harvesting regulations to reduce poaching.

The proposal would also provide a mechanism to reduce the effects of foot traffic and human impact on the intertidal zone. Setting aside some tide pools as off limits, so they can regenerate and seed the surrounding areas would accomplish this. Another possibility is pathways for foot traffic through environmentally sensitive sections of the intertidal zone.

A Marine Wildlife Protection Fund financed by additional taxes each year would pay for these programs.

**Hypothetical Bias** We are going to ask you if you are willing to pay additional taxes. Before we ask you our question, think about referendums on the ballot that allow you to vote in favor of programs to improve the environment. In those votes, you actually give permission to increase your taxes. Since you are not actually voting on a referendum, the increase in taxes is hypothetical. Some researchers are concerned that when payment is hypothetical people will overstate the amount they are willing to allow taxes to be raised. We call this hypothetical bias, the difference between the amounts people respond to hypothetical situations as compared to real situations. We want to get people to think about their taxes in a hypothetical setting like they think in a real situation, where if they agree their taxes will really be raised, and they will have to really dig into their pocket and pay money. One reason offered to explain hypothetical bias is that when there is a real vote, we think a different way: if I spend money on this, then I have less money to spend on other things, and we take into account the limited amount of money we have. So if I were in your shoes, I would ask myself: if this were a real election, and I had to pay \$X in increased taxes for the referendum to win, do I *really want* to spend my money this way? In any case, I ask you to answer just exactly as you would vote if you were really going to face the consequences of your decision: which is to pay increased taxes if the referendum is passed.

**Now Please Look at Card G Side 2**

Q13: Would you be willing to pay \$\_\_\_\_\_ in additional taxes per year? (Amount randomly selected from 2, 5, 10, 15, 20, 30, 40, 50, 70, 90, 100) \_\_\_\_\_Yes \_\_\_\_\_No

Q14: Would you be willing to pay \$\_\_\_\_\_ in additional taxes per year? (Amount equals .5x previous answer if no; amount equals 2xprevious answer if yes) \_\_\_\_\_Yes \_\_\_\_\_No

Q15: please explain your answers to the last two questions

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Q16 void

Q17: Would you be in favor or not in favor of greater enforcement of Marine Refuge laws, which include laws prohibiting harvesting?  
\_\_\_\_\_In Favor \_\_\_\_\_Not in Favor \_\_\_\_\_Not Sure

Q18: One specific program would permit beach lifeguards to summon law enforcement upon viewing unlawful activity within intertidal zones. Are you  
\_\_\_\_\_In Favor \_\_\_\_\_Not in Favor \_\_\_\_\_Not Sure

Q19: Another specific program would temporarily reduce access to some portions of rocky intertidal zones to improve abundance and diversity of marine life. An example might be restricting access to some environmentally sensitive areas for restoration and rejuvenation. Are you  
\_\_\_\_\_In Favor \_\_\_\_\_Not in Favor \_\_\_\_\_Not Sure

## Section E: Contingent Behavior – Prospective Changes in Recreation

There are areas in the rocky intertidal zone of San Clemente Island that have not been affected by humans. The size, abundance, and diversity of marine animals and plants are greater than any of the sites in Orange County. **If** the sites along the coast in Orange county became more like the pristine sites off San Clemente Island,

### Now Please Look at Card H

**CARD H:** Map of Orange County Beaches

Q20: About how many trips would you take during a year? (Refer to the answers to Q3&Q5 before answering; note, *not* additional trips) \_\_\_\_\_

Q21: To which Beaches?

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## Section F: Travel Time – Household Wage, Income, Residence

I want to ask you about your background. This information will help us understand what you are willing to give up in terms of time and wages in order to participate in outdoor recreation.

Q22: In what zip code do you live? \_\_\_\_\_

Q23: Are you employed part or full time? \_\_\_\_\_Part Time \_\_\_\_\_Full Time

Q24: If Neither, are you a homemaker, student, retired? (Circle applicable answers)

Other? \_\_\_\_\_

Q25: If part time, how many hours per week do you work? \_\_\_\_\_ weeks per year? \_\_\_\_\_

Q26: If full time, how much time do you receive for Vacation? \_\_\_\_\_ Days/Weeks/Months

**Now Please Look at Card I** (circle)

Q27: Which describes your Weekly or Monthly (circle one) take-home pay? **CARD I** \_\_\_\_\_

### Now Please Look at Card J

Q28: Which best describes the total annual income, before taxes, for everyone who lives in your household? **CARD J** \_\_\_\_\_

## Section G: Socio-economic Variables

Q29: What is your age? \_\_\_\_\_

### Now Please Look at Card K

Q30: What is your highest level of education? Show **CARD K** \_\_\_\_\_

Q31: How many people other than yourself live in your household? \_\_\_\_\_

Q32: What are their ages? \_\_\_\_\_

Q32A: How many are wage earners? \_\_\_\_\_

Q33: Do you think of yourself as a “concerned environmentalist?”

\_\_\_\_\_Yes \_\_\_\_\_No \_\_\_\_\_Not Sure

Q34: Do you regularly contribute to environmental causes or any environmental group(s)?

\_\_\_\_\_Yes \_\_\_\_\_No \_\_\_\_\_Not Sure

Q35: Which one(s) \_\_\_\_\_

THANK YOU!

## Section H: Information from the Interviewer

Please answer the following questions about the respondent.

Q36: Sex     Male                     Female

Q37: Race     White     Black     Hispanic                     Asian     Other

The Respondent was

	1. Extremely	2. Very	3. Somewhat	4. Slightly	5. Not at all
Q38: Distracted					
Q39: Attentive					
Q40: Interested					
Q41: Impatient					

Q42: Did the respondent say anything suggesting that s/he had any difficulty understanding what the intertidal zone is?     Yes                     No

Describe \_\_\_\_\_

Interview Ending Time: \_\_\_\_\_

Weather Condition:

Temperature:     Hot                     Warm                     Cool                     Cold

Precipitation     Sunny     Cloudy                     Drizzly                     Rainy

Smog:                     Heavy                     Moderate                     Light

Tide: