7. Distribution of Choices and Tests of Validity

This chapter presents the responses to the choice questions and shows that the results are generally consistent with people's beliefs and characteristics. This chapter also presents an analysis of the certainty questions and looks at the relationship between certainty and choice behavior. The percentages reported in this chapter use the pooled, weighted data; the number of observations reported are unweighted.

7.1 Distribution of Choices

This section presents the distribution of choices for the various programs presented in the survey instrument: the Current Program, the No-Fishing Zones Program, the Reef Repair Program, and the Full Program. Table 7.1 shows the distribution of responses across programs for each choice question and presents the aggregate percentage of respondents who chose an Alternative Program over the Current Program (i.e., the status quo).[1] The first choice question (Q10) asked respondents: "Which program is your most preferred?"; the second choice question (Q13) asked respondents: "Of these three, which program do you prefer?"; and the final choice question (Q15) asked respondents: "Of these two, which program do you prefer?" Respondents' fourth choice is implied; it is the remaining program not chosen in Q15. This question format allows us to have a full ranking of the different programs. For the first choice, the Full Program received the largest proportion of votes, with 32.6% of respondents choosing it. The proportions were close for respondents choosing the Current Program and No-Fishing Zones Program as their most preferred, with 26.3% and 27.3%, respectively. The Reef Repair Program received the smallest proportion of votes at 13.9%. Approximately 73.7% of respondents chose an Alternative Program over the status quo.

Table 7.2 presents the distribution of responses to Q10 for each version of the survey.[2] The relative and absolute costs for each program vary across the 16 versions, as shown in Table 7.2. Each respondent received a version randomly, where the probability of receiving any version equaled 1/16.

1. In this chapter we use "status quo" and "Current Program" interchangeably.

2. As noted in Appendix B, there were 16 versions of the choice questions.

Table 7.1. Responses across programs for each choice question

	Current program	No-fishing zones program	Reef repair program	Full program	Alternative program over current program
First choice (Q10)	26.3%	27.3%	13.9%	32.6%	73.7%
Second choice (Q13)	11.3%	39.3%	28.1%	21.2%	88.7%
Third choice (Q15)	11.7%	28.2%	44.7%	15.4%	88.3%
Fourth choice	50.7%	5.3%	13.2%	30.8%	49.3%

Table 7.2. Responses to Q10 based on survey version

Version	Program alternative	Cost	% who chose as most preferred in Q10
1	Current program	$0	28.2
	No-fishing zones program	$45	21.8
	Reef repair program	$35	13.5
	Full program	$75	36.5
2	Current program	$0	26.3
	No-fishing zones program	$45	31.9
	Reef repair program	$55	10.0
	Full program	$100	31.8
3	Current program	$0	27.7
	No-fishing zones program	$45	29.5
	Reef repair program	$95	12.6
	Full program	$130	30.2
4	Current program	$0	16.7
	No-fishing zones program	$45	33.2
	Reef repair program	$135	11.4
	Full program	$160	38.7
5	Current program	$0	26.8
	No-fishing zones program	$75	25.5
	Reef repair program	$35	17.1
	Full program	$110	30.6

Table 7.2. Responses to Q10 based on survey version (cont.)

Version	Program alternative	Cost	% who chose as most preferred in Q10
6	Current program	$0	23.9
	No-fishing zones program	$75	31.6
	Reef repair program	$55	9.4
	Full program	$125	35.1
7	Current program	$0	24.0
	No-fishing zones program	$75	34.9
	Reef repair program	$95	8.1
	Full program	$150	33.0
8	Current program	$0	23.9
	No-fishing zones program	$75	41.7
	Reef repair program	$135	14.5
	Full program	$200	19.8
9	Current program	$0	22.3
	No-fishing zones program	$110	14.7
	Reef repair program	$35	21.6
	Full program	$135	41.4
10	Current program	$0	26.5
	No-fishing zones program	$110	22.3
	Reef repair program	$55	17.0
	Full program	$145	34.2
11	Current program	$0	28.3
	No-fishing zones program	$110	25.2
	Reef repair program	$95	13.9
	Full program	$200	32.6
12	Current program	$0	32.7
	No-fishing zones program	$110	37.0
	Reef repair program	$135	5.3
	Full program	$245	25.0
13	Current program	$0	27.2
	No-fishing zones program	$170	13.6
	Reef repair program	$35	22.3
	Full program	$185	36.9

Table 7.2. Responses to Q10 based on survey version (cont.)

Version	Program alternative	Cost	% who chose as most preferred in Q10
14	Current program	$0	30.3
	No-fishing zones program	$170	16.2
	Reef repair program	$55	20.2
	Full program	$215	33.3
15	Current program	$0	25.4
	No-fishing zones program	$170	25.4
	Reef repair program	$95	13.4
	Full program	$265	35.8
16	Current program	$0	31.0
	No-fishing zones program	$170	29.7
	Reef repair program	$135	11.9
	Full program	$300	27.3

7.2 Tests of Validity

This section looks at whether respondents' acceptance of the scenario presented in the survey and whether respondents' beliefs and attitudes are consistent with their stated choices.

The previous section showed the responses to the choice questions by program. In this section, we confine our analysis to respondents' first choices and group the choice responses into two categories: preference for an Alternative Program or preference for the status quo.

7.2.1 Scenario acceptance

This section presents responses to questions that evaluated respondents' acceptance of the coral reef management scenarios presented in the survey. It also shows how respondents' choices for an Alternative Program versus the status quo varied according to their acceptance of the management scenarios. We find that respondents, in general, accepted the various aspects of the scenarios, and, as expected, respondents who found the management scenarios more credible were also more likely to choose one of the alternatives to the status quo as their most preferred program.

Program effectiveness

No-Fishing Zones Program

Q19 asked, "When you chose your most preferred programs, how effective did you think that no-fishing zones would be in restoring fish and other marine life in the coral reef ecosystem around the Main Hawaiian Islands?" The results show that 3.3% of respondents said "not effective at all," 11.7% said "slightly effective," and 35.5% said "moderately effective." Nearly half of respondents thought the No-Fishing Zones Program would be "very effective" (37.5%) or "extremely effective" (10.7%).

Table 7.3. When you chose your most preferred programs, how effective did you think that no-fishing zones would be in restoring fish and other marine life in the coral reef ecosystem around the Main Hawaiian Islands (Q19)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Not effective at all	3.3	31.3 (87)
Slightly effective	11.7	43.6 (336)
Moderately effective	35.5%	68.4 (1,072)
Very effective	37.5	87 (1,273)
Extremely effective	10.7	93.2 (362)
Refused	1.2	46.5 (37)
Total	100.0%	

The more effective respondents thought the No-Fishing Zones Program would be, the more likely they were to choose an alternative to the status quo as their most preferred program. For example, whereas 31.3% of respondents who thought the no-fishing zones would be "not effective at all" chose an alternative to the status quo, 93.2% of respondents who thought no-fishing zones would be "extremely effective" chose an alternative to the status quo. Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(4.68, 14818.7) = 54.92$; $p < 0.001$].

Reef Repair Program

Q21 asked, "When you chose your preferred programs, how effective did you think that repairing injuries from ship accidents would be in speeding up recovery of the coral reef ecosystem around the Main Hawaiian Islands?" The results show that 8.3% of respondents thought repairing injuries from ship accidents would be "extremely effective," 23.3% thought it would be "very effective," 37.1% thought it would be "moderately effective," 24.3% thought it would be "slightly effective," and 5.8% thought it would be "not effective at all" (see Table 7.4).

Table 7.4. When you chose your preferred programs, how effective did you think that repairing injuries from ship accidents would be in speeding up recovery of the coral reef ecosystem around the Main Hawaiian Islands (Q21)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Not effective at all	5.8	36.1 (178)
Slightly effective	24.3	59.4 (817)
Moderately effective	37.1	77 (1,136)
Very effective	23.3	86.8 (750)
Extremely effective	8.3	95.3 (251)
Refused	1.2	34.3 (35)
Total	100.0%	

As with the No-Fishing Zones Program, the more effective a respondent thought the Reef Repair Program would be, the more likely he or she was to choose an alternative to the status quo. Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(4.95, 15666.56) = 50.26$; $p < 0.001$].

Time to reef recovery after repairs

Q22 asked, "When you chose your most preferred programs, did you think that repairs of injuries to coral reefs after ship accidents would help reefs recover in about 10 years, more than 10 years, or less than 10 years?" The survey explained to respondents that the repaired coral reefs would

recover in 10 years rather than 50 years without any repairs. Most respondents thought reefs would recover in about 10 years (56.5%), while 30.6% thought it would take more than 10 years and 11.7% thought it would take less than 10 years.

Respondents who thought reef recovery would happen in about 10 years were the most likely to choose an alternative to the status quo (76.5%). Respondents who thought it would take more time were less likely to choose an alternative to the status quo (69.4%), as were respondents who thought it would take less time (73.2%). Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(2.99, 9452.87) = 4.46$; $p = 0.004$].

Table 7.5. When you chose your most preferred programs, did you think that repairs of injuries to coral reefs after ship accidents would help reefs recover in about 10 years, more than 10 years, or less than 10 years (Q22)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
About 10 years	56.5	76.5 (1,835)
More than 10 years	30.6	69.4 (972)
Less than 10 years	11.7	73.2 (324)
Refused	1.3	54.3 (36)
Total	100.0%	

Program cost

Q23 asked, "When you chose your most preferred programs, did you think that your household would pay the tax amount stated, or did you think you would pay more than that amount, or less than that amount?" The results show that 46.3% of respondents thought they would pay the amount stated, 32.9% thought they would pay more, and 19.5% thought they would pay less.

Respondents who thought they would pay the amount stated were the most likely to choose an alternative to the status quo (78.9%), and respondents who thought they would pay less were the next most likely to choose an alternative to the status quo (78.6%). Respondents who expected to pay more were the least likely to choose an alternative to the status quo (64.5%). Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(3, 9486.65) = 18.51$; $p < 0.001$].

Table 7.6. When you chose your most preferred programs, did you think that your household would pay the tax amount stated, or did you think you would pay more than that amount, or less than that amount (Q23)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
The amount stated	46.3	78.9 (1,511)
More than the amount	32.9	64.5 (1,037)
Less than the amount	19.5	78.6 (586)
Refused	1.3	42.9 (33)
Total	100.0%	

Judgments about seriousness of problem

Contribution of overfishing to problem

Q17 asked, "When you chose your most preferred programs, did you think that overfishing contributed to the changes in Hawaii's coral reef ecosystems we told you about or did you think it did not contribute to those changes?" Most respondents thought that overfishing did contribute (86.7%); 12.1% thought that overfishing did not contribute.

Respondents who thought overfishing did contribute to the program were more likely to choose an alternative to the status quo. The results show that 77.9% of respondents who thought overfishing contributed to the problem chose an alternative to the status quo, and 46.6% of respondents who did not think overfishing contributed to the problem chose an alternative to the status quo. Respondents who thought overfishing did contribute to the problem were significantly more likely to choose an alternative to the status quo [$F(1.99, 6301.43) = 46.89$; $p < 0.001$].

Table 7.7. When you chose your most preferred programs, did you think overfishing contributed to coral reef change ecosystems we told you about or did you think it did not contribute to those changes (Q17)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Overfishing did contribute	86.7	77.9 (2,812)
Overfishing did not contribute	12.1	46.6 (328)
Refused	1.2	38.6 (27)
Total	100.0%	

Seriousness of problem

Q18 asked, "If no-fishing zones are NOT put in place, how serious did you think the effects of overfishing would be on the coral reef ecosystem around the Main Hawaiian Islands?" The result is that 15.1% of respondents thought the effects would be either "not serious at all" or "slightly serious," 30.1% thought it would be moderately serious, and 54.1% thought it would be very or extremely serious.

As expected, respondents who thought the effects would be more serious were more likely to choose an alternative to the status quo. For example, respondents who thought the effects would be "extremely serious" chose an alternative to the status quo 92.7% of the time, whereas respondents who thought the effects would be "not serious at all" chose an alternative to the status quo 22.4% of the time. Respondents who thought the effects of overfishing were more serious were significantly more likely to choose an alternative to the status quo as their most preferred program [$F(4.96, 15701.21) = 64.24$; $p < 0.001$].

Q20 asked, "When you chose your preferred programs, how serious did you think the effects of ship accidents are on the overall health of the coral reef ecosystem around the Main Hawaiian Islands?" The results show that 32.9% of respondents thought the effects were "not serious at all" or "slightly serious," 34.5% thought the effects were "moderately serious," and 31.3% thought the effects were either "very serious" or "extremely serious."

Table 7.8. If no-fishing zones are NOT put in place, how serious did you think the effects of overfishing would be on the coral reef ecosystem around the Main Hawaiian Islands (Q18)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Not serious at all	3.2	22.4 (95)
Slightly serious	11.9	47.9 (337)
Moderately serious	30.1	63.9 (902)
Very serious	36.2	86.1 (1,221)
Extremely serious	17.9	92.7 (586)
Refused	0.7	35.6 (26)
Total	100.0%	

When respondents perceived ship accidents to be more serious, they were more likely to choose an alternative to the status quo as their most preferred program. For example, respondents who thought ship accidents were "extremely serious" chose an alternative to the status quo 94.3% of the time. Respondents who thought ship accidents were "not serious at all" chose an alternative to the status quo 32.6% of the time. Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(4.96, 15705.51) = 46.45$; $p < 0.001$].

Table 7.9. When you chose your preferred programs, how serious did you think the effects of ship accidents are on the overall health of the coral reef ecosystem around the Main Hawaiian Islands (Q20)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Not serious at all	7.9	32.6 (259)
Slightly serious	25.0	66.2 (838)
Moderately serious	34.5	75.7 (1,080)

Table 7.9. When you chose your preferred programs, how serious did you think the effects of ship accidents are on the overall health of the coral reef ecosystem around the Main Hawaiian Islands (Q20) (cont.)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Very serious	22.6	86 (696)
Extremely serious	8.7	94.3 (251)
Refused	1.4	58.8 (43)
Total	100.0%	

7.2.2 Construct validity

In this section we evaluate variables that we expect to be associated with respondents' likelihood of choosing an alternative over the status quo. We evaluate several variables that potentially influence respondents' choices, including respondents' characteristics (i.e., demographic variables), respondents' familiarity with coral reefs, their attitudes about the environment, and their attitudes about taxes. In the subsequent section, we present results of a multivariate analysis that explores the relationship between these variables and the likelihood of a respondent choosing an alternative over the status quo.

Respondent demographics

Education

Approximately 31% of respondents were high school graduates with no further education and over half (59.1%) of respondents had some college education or more; 10% of respondents did not complete high school.

Overall, respondents with higher education were a little more likely to choose an alternative to the status quo. On average, respondents who did not graduate high school chose an alternative to the status quo 66.6% of the time, while high school graduates chose an alternative to the status quo 70.4% of the time, and respondents with more than a high school degree (some college, no degree; associate's degree; bachelor's degree; master's degree; or professional or doctorate degree) chose an alternative to the status quo 76.9% of the time. Responses to the education question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(9.87, 31026.22) = 2.26$; $p = 0.013$].

Table 7.10. Respondent education levels

Response	% of sample (N = 3,146)	% of respondents choosing an alternative to the status quo (unweighted N)
No formal education	0.1	100 (2)
5th or 6th grade	0.0	0 (0)
7th or 8th grade	0.5	84.1 (8)
9th grade	0.9	49.6 (14)
10th grade	2.0	57.7 (37)
11th grade	3.8	71.7 (46)
12th grade no diploma	2.7	69.5 (42)
High school graduate	30.7	70.4 (574)
Some college, no degree	21.4	71.7 (834)
Associate degree	9.0	77.1 (316)
Bachelor's degree	18.4	78.5 (720)
Master's degree	7.2	83.6 (392)
Professional or doctorate degree	3.1	80.6 (155)
Refused	0.2	59.3 (6)
Total	100.0%	

Home ownership

Most respondents own their home (76.9%), fewer rent (15.9%), and fewer still have an arrangement other than owning or renting (7.0%). Respondents in this last group have the highest likelihood of choosing an alternative to the status quo (81.4%), while homeowners have the lowest likelihood (73.2%). Responses to the home ownership question did not differ significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(2.83, 8459.96) = 1.8$; $p = 0.149$].

Table 7.11. Respondent home ownership

Response	% of sample (N = 2,995)	% of respondents choosing a program over status quo (base unweighted N)
Own	76.9	73.2 (2,344)
Rent	15.9	76.7 (504)
Some other arrangement	7.0	81.4 (142)
Refused	0.2	58.6 (5)
Total	100.0%	

Employment status

Most respondents were working, either as a paid employee (53.2%) or self-employed (10.7%). The total of unemployed respondents was 6.2%, either as a temporary layoff (1.0%) or looking for work (5.2%). In addition, 17.1% of respondents were retired, 4.4% were disabled, and 8.3% had some other reason for not working.

Respondents who were employed, either as a paid employee or self-employed, had a relatively high probability of choosing a program as their most preferred (75.4% and 72.1%, respectively). However, respondents on a temporary layoff had the highest probability of choosing a program as their most preferred at 81.3%. Retirees chose an alternative to the status quo the least, at 69.5%. The differences between employment status and program selection were not statistically significant [$F(6.47, 20492.13) = 1.17$; $p = 0.319$].

Table 7.12. Respondent employment status

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Working – as a paid employee	53.2	75.4 (1,717)
Working – self-employed	10.7	72.1 (359)
Not working – on temporary layoff	1.0	81.3 (29)
Not working – looking for work	5.2	72.5 (129)
Not working – retired	17.1	69.5 (585)
Not working – disabled	4.4	71.9 (140)
Not working – other	8.3	74.4 (207)
Refused	0.1	0 (1)
Total	100.0%	

Income

There is a marginally significant monotonic change in the proportion of respondents choosing one of the alternatives as their income increases [$F(18.27, 55{,}523.25) = 1.57$; $p = 0.056$]. We find that 69% of respondents making less than or equal to the sample median income ($55,000) chose an alternative over the status quo, whereas 74% of respondents earning more than $55,000 chose an alternative over the status quo. This difference was not statistically significant [$F(1, 3{,}260) = 4.58$; $p = 0.032$].

Table 7.13. Respondent income

Response	% of sample (N = 3,040)	% of respondents choosing a program over status quo (base unweighted N)
$0- < $5,000	1.5	68.7 (45)
$5,000- $7,499	1.0	76 (30)
$7,500- $9,999	0.6	70.8 (23)

Table 7.13. Respondent income (cont.)

Response	% of sample (N = 3,040)	% of respondents choosing an alternative to the status quo (unweighted N)
$10,000- $12,499	1.4	69.3 (41)
$12,500- $14,999	1.9	60 (52)
$15,000- $19,999	3.2	60.5 (91)
$20,000- $24,999	5.8	68.6 (142)
$25,000- $29,999	5.1	65.3 (136)
$30,000- $34,999	3.7	75.5 (119)
$35,000- $39,999	11.2	63.1 (305)
$40,000- $49,999	7.8	71.5 (256)
$50,000- $59,999	9.2	77.3 (272)
$60,000- $74,999	12.5	74.2 (380)
$75,000- $84,999	7.0	74.1 (216)
$85,000- $99,999	7.2	71.4 (233)
$100,000- $124,999	7.6	74.5 (242)
$125,000- $149,999	4.4	74.2 (148)
$150,000- $174,999	2.8	88.4 (86)
$175,000 or more	4.4	74.4 (167)
Total	98.3%	

Approximately 1.8% of respondents provided responses to a category with a broader income range and are not presented in this table.

Marital status

Of respondents, 64.8% were married, 13.0% were widowed, 9.7% were divorced, 3.3% were separated, and 8.9% were never married. Of never married respondents, 82.0% chose an alternative to the status quo, the most of any category. Widowed respondents follow, at 78.3%, and divorced respondents were least likely to choose an alternative to the status quo, at 71.8%. Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(4.61, 14573.14) = 2.27$; $p = 0.05$].

Table 7.14. Respondent marital status

Response	% of sample (N = 3,159)	% of respondents choosing an alternative to the status quo (unweighted N)
Married	64.8	71.9 (1,972)
Widowed	13.0	78.3 (312)
Divorced	9.7	71.8 (438)
Separated	3.3	71.9 (151)
Never married	8.9	82.0 (275)
Refused	0.4	77.1 (11)
Total	100.0%	

Taxpayers

Respondents were asked, "Did anyone in your household pay any federal income taxes last year, 2008?" Results show that 86.5% of respondents had and 8.5% had not and 4.9% were not sure.

Respondents who did not pay federal income taxes chose an alternative to the status quo 74.2% of the time, whereas 73.9% of respondents who did pay federal income taxes chose an alternative to the status quo. These differences between respondents who answered "yes," "no," or "not sure" were not statistically significant [$F(2.66, 8431.14) = 0.55$; $p = 0.624$]. When responses for respondents who refused to answer the question were included, the differences were not statistically significant [$F(1.98, 6246.61) = 2.58$; $p = 0.524$].

Table 7.15. Did anyone in your household pay any federal taxes last year, 2008 (Q29)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Yes	86.5	73.9 (2,787)
No	8.5	74.2 (263)
Not sure	4.9	68.1 (112)
Refused	0.1	66.5 (5)
Total	100.0%	

Respondents' familiarity with coral reefs

Heard about coral reefs often

Q1 asked, "How often have you read or heard about coral reefs, either in U.S. waters or elsewhere?" Results show that 34.3% of respondents had heard about coral reefs not often at all, 30.0% had heard slightly often, and 25.2% had heard moderately often. Few respondents had heard of coral reefs very often (8.8%) or extremely often (1.3%).

Overall, respondents who had heard more about coral reefs were more likely to choose an alternative to the status quo. Respondents who heard about reefs "very often" chose an alternative to the status quo 87.3% of the time, and respondents who heard about reefs "extremely often" chose an alternative to the status quo 92.1% of the time. Respondents who heard about reefs "not often at all" chose an alternative to the status quo the least, at 64.8% of the time. Responses to this question differed significantly between respondents who chose an alternative to the status quo as compared with respondents who chose the status quo [$F(4.56, 14430.6) = 14.78$; $p < 0.001$].

Table 7.16. How often have you read or heard about coral reefs, either in U.S. waters or elsewhere (Q1)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Not often at all	34.3	64.8 (1,025)
Slightly often	30.0	73.9 (953)
Moderately often	25.2	79.4 (849)
Very often	8.8	87.3 (279)
Extremely often	1.3	92.1 (54)
Refused	0.3	90.4 (7)
Total	100.0%	

Frequency of visits to coral reefs

Q2 asked, "About how many times have you been to a coral reef in the U.S. or elsewhere to fish, snorkel, scuba dive, view marine life, or for some other reason?" Results show that 52.8% of respondents had never visited a coral reef, 24.3% had visited once or twice, 13.7% had visited three to seven times, and 7.9% had visited at least eight times.

As we expected, respondents who visited coral reefs the most were also the most likely to choose an alternative to the status quo as their most preferred. Respondents who had visited at least eight times chose an alternative to the status quo 86.8% of the time, respondents who had visited three to seven times chose an alternative to the status quo 76.6% of the time, respondents who had visited once or twice chose an alternative to the status quo 79% of the time, and respondents who had never visited chose an alternative to the status quo 68.9% of the time. These differences in program preferences over visit frequency were statistically significant [$F(3.61, 11442.62) = 9.66$; $p < 0.001$].

Table 7.17. About how many times have you been to a coral reef in the U.S. or elsewhere to fish, snorkel, scuba dive, view marine life, or for some other reason (Q2)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
0 times	52.8	68.9 (1,584)
1–2 times	24.3	79.0 (772)
3–7 times	13.7	76.6 (471)
At least 8 times	7.9	86.8 (311)
Refused	1.3	53.3 (29)
Total	100.0%	

Lived in Hawaii

Q4 asked, "Have you ever lived in Hawaii, or have you never lived in Hawaii?" Results show that 97.0% of respondents had never lived in Hawaii; 2.8% had lived in Hawaii. Respondents who had lived in Hawaii were more likely to choose an alternative to the status quo as their most preferred – 77.8% versus 73.5% for respondents who had never lived in Hawaii. These differences were not statistically significant [$F(1.92, 6090.36) = 0.36$; $p = 0.687$].

Table 7.18. Have you ever lived in Hawaii, or have you never lived in Hawaii (Q4)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Yes, I have lived in Hawaii	2.8	77.8 (96)
No, I have never lived in Hawaii	97.0	73.5 (3,066)
Refused	0.2	78.1 (5)
Total	100.0%	

Likely to visit Hawaii

Q5 asked, "In the next 10 years, how likely is it that you will go to Hawaii?" Results show that 38.4% of respondents either definitely or probably will not go to Hawaii, 31.7% may or may not go to Hawaii, and 29.7% either probably or definitely will go to Hawaii.

As we expected, the more likely a person is to go to Hawaii, the more likely he or she is to choose an alternative to the status quo as most preferred. Those who responded that they "definitely will not go to Hawaii" chose an alternative to the status quo 60.5% of the time, whereas those who responded that they "definitely will go to Hawaii" chose an alternative to the status quo 83.5% of the time. These differences in program preferences across likelihood of visiting Hawaii were statistically significant [$F(4.9, 15514.38) = 15.2$; $p < 0.001$].

Table 7.19. In the next 10 years, how likely is it that you will go to Hawaii (Q5)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
I definitely will not go to Hawaii	10.6	60.5 (291)
I probably will not go to Hawaii	27.8	64.6 (888)
I may or may not go to Hawaii	31.7	77.5 (1,017)
I probably will go to Hawaii	19.1	82.6 (621)
I definitely will go to Hawaii	10.6	83.5 (342)
Refused	0.2	46.2 (8)
Total	100.0%	

Respondent attitudes about the environment

Importance of costs when protecting the environment

Q28a asked how much respondents agree with the statement, "Cost should not be a factor when protecting the environment." Results show that 45.0% either strongly or somewhat disagreed, 36.1% somewhat or strongly agreed, and 18.3% neither agreed nor disagreed.

Overall, the more a respondent agreed with this statement, the more likely he or she was to choose an alternative to the status quo. Respondents who strongly agreed with this statement chose an alternative to the status quo 85.4% of the time, whereas respondents who strongly disagreed chose an alternative to the status quo 51.2% of the time. Respondents who somewhat agreed chose an alternative to the status quo 88.2% of the time, and respondents who somewhat disagreed chose an alternative to the status quo 73.1% of the time. Respondents who neither agreed nor disagreed chose an alternative to the status quo 68.9% of the time. These differences in program preferences over level of agreement with this statement were statistically significant [$F(4.92, 15583.48) = 29.21$; $p < 0.001$].

Table 7.20. Cost should not be a factor when protecting the environment (Q28a)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Strongly disagree	17.3	51.2 (544)
Somewhat disagree	27.7	73.1 (908)
Neither agree nor disagree	18.3	68.9 (533)
Somewhat agree	25.9	88.2 (846)
Strongly agree	10.2	85.4 (315)
Refused	0.7	63.2 (21)
Total	100.0%	

Appropriateness of current spending on environment

Q2D1b and Q2D2b asked for respondents' opinions on public spending on the environment using two different versions. For each version, respondents were asked whether they thought we are spending "too little," "too much," or "about the right amount." The first version asked for respondents' opinions on "Current spending on the environment." The second version asked for respondents' opinions on "Current spending on improving and protecting the environment." In the first version, the most common response was "too little" (48.4%). However, in the second version, the most common response was "about the right amount" (44.3%). And 13.1% of those responding to the first version and 14.3% of those responding to the second version thought we were spending "too much."

For both versions, respondents who thought we were spending "too little" were also the most likely to choose an alternative to the status quo as their most preferred, with 83.7% for the first version and 85.3% for the second. Respondents who thought we were spending too much chose an alternative to the status quo the least often: 49.9% for the first version and 48.2% for the second. The differences in program preferences over opinions about current spending on the environment were statistically significant for both versions [version 1: $F(2.75, 4{,}354.9) = 24.78$; $p < 0.001$; version 2: $F(2.54, 4{,}015.65) = 18.16$; $p < 0.001$].

Table 7.21. Current spending on the environment (Q2D1b)?

Response	% of sample (N = 1,583)	% of respondents choosing an alternative to the status quo (unweighted N)
Too little	48.4	83.7 (777)
About the right amount	37.9	68.5 (583)
Too much	13.1	49.9 (212)
Refused	0.7	84.3 (11)
Total	100.0%	

Table 7.22. Current spending on improving and protecting the environment (Q2D2b)?

Response	% of sample (N = 1,584)	% of respondents choosing a program over status quo (base unweighted N)
Too little	40.7	85.3 (688)
About the right amount	44.3	71.7 (679)
Too much	14.3	48.2 (213)
Refused	0.7	64.5 (4)
Total	100.0%	

Environmentalist

Q27 asked, "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?" More respondents considered themselves "not an environmentalist at all" or "slightly an environmentalist" than considered themselves "a strong environmentalist" or "a very strong environmentalist": 41.3% versus 17.7%. "Moderate environmentalist" was the most common response, at 40.6%.

Table 7.23. 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 (Q27)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Not an environmentalist at all	12.2	54.4 (319)
Slightly an environmentalist	29.1	68.4 (855)
A moderate environmentalist	40.6	78.4 (1,374)
A strong environmentalist	14.6	84.2 (483)
A very strong environmentalist	3.1	93.9 (127)
Refused	0.4	20.4 (9)
Total	100.0%	

As could be expected, the stronger an environmentalist a respondent considers himself or herself, the more likely he or she is to choose an alternative to the status quo as most preferred. For example, 93.9% of respondents who consider themselves very strong environmentalists chose an alternative to the status quo as their most preferred, whereas 54.4% of respondents who consider themselves "not an environmentalist at all" chose an alternative to the status quo. These differences in program preferences over identification as an environmentalist were statistically significant [$F(4.7, 14891.48) = 22.45$; $p < 0.001$].

Trust government or university scientists

Q24 asked, "Please tell us how much confidence you have in the following groups and institutions in this country. In general, would you say you have no confidence at all, a little confidence, a moderate amount of confidence, a lot of confidence, or a great deal of confidence in the following?" They were then asked to rate their confidence in "The people who run the U.S. government" (Q24a) and "university scientists" (Q24b).

Table 7.24. How much confidence do you have in the people who run the U.S. government (Q24a)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
No confidence at all	19.8	52.8 (600)
A little confidence	32.1	74.6 (999)
A moderate amount of confidence	34.8	79.7 (1,183)
A lot of confidence	10.9	88.5 (312)
A great deal of confidence	2.1	84.6 (61)
Refused	0.4	47.7 (12)
Total	100.0%	

Results show that 51.9% of respondents had "no confidence at all" or "a little confidence" in the people who run the U.S. government. And 13.0% had "a lot" or "a great deal" of confidence, while 34.8% had a moderate amount of confidence. We find that, in general, the greater a respondent's confidence in government, the higher the likelihood the respondent will choose an alternative to the status quo. Although the probability of voting yes does not increase monotonically as confidence increases, respondents with a lot or great deal of confidence are more likely to choose an alternative to the status quo (88.5% and 84.6%, respectively) than respondents who have no confidence or a little confidence (52.8% and 74.6%, respectively). These differences in the probabilities of choosing a program over different levels of confidence in government were statistically significant [$F(4.76, 15057.34) = 24.61$; $p < 0.001$].

Results also show that 21.6% of respondents had "no confidence at all" or "a little confidence" in university scientists, and 37.9% had "a lot of confidence" or "a great deal of confidence" in university scientists. Also, 39.8% of respondents had a moderate amount of confidence in university scientists.

As respondent confidence in university scientists increases, so does the probability of choosing a program over the status quo. For example, respondents with "a great deal of confidence" in university scientists chose an alternative to the status quo as their most preferred alternative 89.4% of the time, whereas respondents with "no confidence at all" chose an alternative to the status quo as their most preferred 29.7% of the time. These differences in preferences for programs over levels of confidence in university scientists were statistically significant [$F(4.93, 15596.25) = 33.5$; $p < 0.001$].

Table 7.25. How much confidence do you have in university scientists (Q24b)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
No confidence at all	4.3	29.7 (123)
A little confidence	17.3	60.7 (506)
A moderate amount of confidence	39.8	72 (1,236)
A lot of confidence	29.5	85.6 (999)
A great deal of confidence	8.4	89.4 (280)
Refused	0.7	67.2 (23)
Total	100.0%	

Respondent attitudes about taxes

Should not have to pay more to protect coral reefs

Q28e asked respondents to indicate their level of agreement with the statement, "I should not have to pay more federal taxes to protect coral reefs in Hawaii." Results show that 31.2% of respondents strongly or somewhat disagreed with the statement, 42.6% somewhat or strongly agreed with the statement, and 25.2% neither agreed nor disagreed.

As we expect, respondents who agree with this statement are less likely to choose a program over the status quo. For example, respondents who "strongly agree" with the statement chose an alternative to the status quo 33.3% of the time, whereas respondents who "strongly disagree" with the statement chose an alternative to the status quo 87.2% of the time. These differences in preferences for programs over opinions about paying additional taxes to protect coral reefs were statistically significant [$F(4.81, 15215.26) = 83.73$; $p < 0.001$].

Table 7.26. I should not have to pay more federal taxes to protect coral reefs in Hawaii (Q28e)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Strongly disagree	11.6	87.2 (410)
Somewhat disagree	19.6	94.8 (716)
Neither agree nor disagree	25.2	85.3 (732)
Somewhat agree	21.3	73.4 (637)
Strongly agree	21.3	33.3 (648)
Refused	1.0	73.5 (24)
Total	100.0%	

Favor increasing federal taxes to protect coral reefs

Q25 asked, "How do you feel about increasing federal taxes to protect coral reefs around the Main Hawaiian Islands?" Results show that 32.8% of respondents strongly or somewhat oppose paying more taxes, 42.9% somewhat or strongly favor paying more taxes, and 24.0% neither oppose nor favor.

As expected, the more respondents favor paying more taxes the more likely they are to choose an alternative to the status quo as their most preferred. Respondents who strongly favor paying more taxes chose an alternative to the status quo 99.5% of the time, and respondents who strongly oppose paying more taxes chose an alternative to the status quo 19.2% of the time. These differences in preferences for programs over opinions regarding paying additional taxes were statistically significant [$F(4.82, 15274.93) = 151.68$; $p < 0.001$].

Table 7.27. How do you feel about increasing federal taxes to protect coral reefs around the Main Hawaiian Islands (Q25)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Strongly oppose	17.3	19.2 (574)
Somewhat oppose	15.5	57.6 (460)
Neither oppose nor favor	24.0	79.9 (641)
Somewhat favor	30.8	97.6 (1,031)
Strongly favor	12.1	99.5 (450)
Refused	0.4	52.6 (11)
Total	100.0%	

Higher taxes or higher prices to fund programs

Q26 asked, "If you had to choose, would you prefer to pay for new environmental programs through higher income taxes or through higher taxes?" Respondents most commonly indicated "no preference" (39.8%). Of those that chose between the two options, 20% chose higher income taxes and 39.4% chose higher prices.

Respondents who prefer to pay for programs through higher taxes were also more likely to choose an alternative to the status quo as their most preferred (91.4%). Those who preferred higher prices chose an alternative to the status quo 73.5% of the time, and those with no preference chose an alternative to the status quo 66.1% of the time. The differences in preferences for programs over preferences for payment mechanism were statistically significant [$F(2.93, 9269.52) = 39$; $p < 0.001$].

Table 7.28. If you had to choose, would you prefer to pay for new environmental programs through higher income taxes or through higher prices (Q26)?

Response	% of sample (N = 3,167)	% of respondents choosing an alternative to the status quo (unweighted N)
Through higher income taxes	20.0	91.4 (659)
Through higher prices	39.4	73.5 (1,316)
No preference	39.8	66.1 (1,169)
Refused	0.8	19.3 (23)
Total	100.0%	

7.3 Certainty

After respondents chose their most preferred program in Q10, Q13, and Q15, they were asked how certain they were of their choices in the corresponding certainty questions: ***[Q11]***, ***[Q14]***, and ***[Q16]***. For example, ***[Q11]*** asked, "You chose the [Answer to Q10] as your most preferred program of these four programs. How sure are you that among these four programs, the [Answer to Q10] is your most preferred?" Results show that 50% of respondents were asked all three certainty questions, while 25% were asked only ***[Q11]*** or ***[Q16]***.

As shown in the second column of Table 7.29, 19.2% of respondents were either "not sure at all" or "slightly sure" about their response to Q10. Results show that 34.4% were "moderately sure" and 46.1% were either "very sure" or "extremely sure." Respondents who were "moderately sure" about their choice in Q10 were most likely to choose an alternative to the status quo (79.6%), whereas respondents who were "not sure at all" were least likely to choose an alternative to the status quo (51.5%). The proportion of respondents choosing an alternative to the status quo differs by how certain respondents were about their choice. These differences are statistically significant [$F(4.78, 11391.15) = 9.54$; $p < 0.001$].

Table 7.29. Certainty of choice in Q10 *[Q11]*

Response	% of sample (N = 2,383)	% of respondents choosing an alternative to the status quo (unweighted N)
Not sure at all	7.7	51.5 (146)
Slightly sure	11.5	78.8 (252)
Moderately sure	34.4	79.6 (797)
Very sure	28.4	73.2 (722)
Extremely sure	17.7	67.3 (458)
Refused	0.3	39.7 (8)
Total	100.0%	

Table 7.30 shows 24.9% of respondents were either "not sure at all" or "slightly sure" about their response to Q13 ("Of the remaining three programs, which program do you prefer?"). Results show that 33.4% were "moderately sure" and 41.3% were either "very sure" or "extremely sure." Respondents who were "extremely sure" about their choice in Q13 were most likely to choose an alternative to the status quo (94.6%), whereas respondents who were "not sure at all" about their choice were least likely to choose an alternative to the status quo (87.5%). Respondents who chose an alternative to the status quo as their most preferred choice are not significantly more certain about their choice [$F(4.54, 7125.1) = 1.27$; $p = 0.278$].

As shown in the second column of Table 7.31, 26.7% of respondents were either "not sure at all" or "slightly sure" about their response to Q15 ("Of the remaining two programs, which program do you prefer?"). Results show that 33% were "moderately sure" and 39.9% were either "very sure" or "extremely sure." Respondents who were "extremely sure" or "very sure" about their choice in Q15 were most likely to choose an alternative to the status quo (94.3% and 90.3%, respectively), whereas respondents who were "slightly sure" about their choice were least likely to choose an alternative to the status quo (84.9%). The proportion of respondents choosing an alternative to the status quo in Q15 differs by how certain respondents were about their choice. These differences are statistically significant [$F(4.86, 11401.53) = 3.71$; $p = 0.003$].

Table 7.30. Certainty of choice in Q13 *[Q14]*

Response	% of sample (N = 1,571)	% of respondents choosing an alternative to the status quo (unweighted N)
Not sure at all	7.8	87.5 (113)
Slightly sure	17.1	88.2 (232)
Moderately sure	33.4	90.2 (528)
Very sure	26.2	88.2 (434)
Extremely sure	15.1	94.6 (256)
Refused	0.4	77 (8)
Total	100.0%	

Table 7.31. Certainty of choice in Q15 *[Q16]*

Response	% of sample (N = 2,347)	% of respondents choosing an alternative to status quo (unweighted N)
Not sure at all	10.6	86.1 (237)
Slightly sure	16.1	84.9 (333)
Moderately sure	33.0	85.3 (735)
Very sure	21.8	90.3 (570)
Extremely sure	18.1	94.3 (463)
Refused	0.4	100 (9)
Total	100.0%	

Table 7.32 shows the distribution of certainty responses by choice question. Results show that 19.2% of respondents were either "not sure at all" or "slightly sure" about their response to Q10 compared to 24.9% and 26.7% of respondents for Q13 and Q15, respectively. Similarly, 46.1% of respondents were either "very sure" or "extremely sure" about their responses to Q10 compared to 41.3% and 39.9% of respondents for Q13 and Q15, respectively. This demonstrates a declining rate of certainty over the choice questions. Respondents were most certain about their first choice and least certain about their third choice. The distributions of certainty responses across ***[Q11]***, ***[Q14]***, and ***[Q16]*** are statistically different [$F(9.76, 86{,}508.00) = 5.91$; $p<0.001$].

Table 7.32. Certainty by choice question

Response	% of sample, *[Q11]* (N = 2,383)	% of sample, *[Q14]* (N =1,571)	% of sample, *[Q16]* (N =2,347)
Not sure at all	7.7	7.8	10.6
Slightly sure	11.5	17.1	16.1
Moderately sure	34.4	33.4	33.0
Very sure	28.4	26.2	21.8
Extremely sure	17.7	15.1	18.1
Refused	0.3	0.4	0.4
Total	100.0%	100.0%	100.0%

7.4 Conclusion

Overall, across the range of tests presented above, the likelihood of choosing an Alternative Program over the Current Program (status quo) was responsive to respondents' acceptance of the scenarios and their characteristics and beliefs.