B. Experimental Design

There are three programs other than the status quo in the Coral Reef Valuation Study survey: (1) increasing the no-fishing zones from 1% to 25% around the MHI (No-Fishing Zones Program), (2) repairing reefs from ship injuries so that injuries last 10 years rather than 50 years (Reef Repair Program), and (3) implementing no-fishing zones *and* repairing reefs from ship injuries (Full Program). Thus, there are two attributes for the survey: the percentage of MHI reefs protected and the years for reefs to be repaired from ship injuries. The individual programs, no-fishing zones and reef repair, have two levels apiece: the status quo or some positive action. As summarized in Table B.1, the alternative levels for no-fishing zones and reef repair are 25% of reefs protected versus 1% under the status quo and injuries being repaired in 10 years rather than the status quo of 50 years.

There are four possible combinations of attribute levels (referred to as alternatives) representing the combinations of programs: the status quo, no-fishing zones only, reef repair only, and the Full Program. Because there are only four possible combinations, it is possible to obtain a full ranking of a respondent's preferences using only one choice set (with four alternatives). We have assigned each attribute a vector of bid amounts to represent the cost of implementing the program to produce the desired attribute levels (Table B.1). The bid amounts were selected as follows:

} We used the results from the 2009 pretest to create a distribution of predicted WTP estimates for the No-Fishing Zones and Reef Repair programs.

} We simulated probabilities of respondents selecting each alternative using the parameter estimates from the pretest and randomized error terms.

} We experimented with the bids to re-balance the predicted probabilities and to best capture the overall range of WTP values.

In the survey, the bid amounts are represented as the cost of implementing the individual programs. For the Full Program, we set the bid amount equal to the sum of the individual program costs minus a discount factor. The discount factor is included to provide more variation in prices in the dataset and to account for the fact that respondents generally expect "package" programs to cost less than the outright sum of the individual costs. The experimental design includes three discount factors: 0, 5, 10, and 20, which are assigned orthogonally across the different versions of the choice sets.

Table B.1. Program attributes and associated levels

Attribute	Status quo level	Alternate level	Cost ($)
% of coral reefs protected by no-fishing zones	1	25	45, 75, 110, 170
Years for reefs to be repaired from ship injuries	50	10	35, 55, 95, 135

There are 16 possible choice sets for the main survey that contain all the different combinations of individual program costs. Each individual program cost level appears four times in the design matrix, and each time it appears it is paired with a different discount factor. Table B.2 presents the experimental design matrix.

Table B.2. Experimental design matrix

Version	Current program	No-fishing zones program	Reef repair program	Full program	Discount factor
1	$0	$45	$35	$75	$5
2	$0	$45	$55	$100	$0
3	$0	$45	$95	$130	$10
4	$0	$45	$135	$160	$20
5	$0	$75	$35	$110	$0
6	$0	$75	$55	$125	$5
7	$0	$75	$95	$150	$20
8	$0	$75	$135	$200	$10
9	$0	$110	$35	$135	$10
10	$0	$110	$55	$145	$20
11	$0	$110	$95	$200	$5
12	$0	$110	$135	$245	$0
13	$0	$170	$35	$185	$20
14	$0	$170	$55	$215	$10
15	$0	$170	$95	$265	$0
16	$0	$170	$135	$300	$5