Chapter 3: Methodology - Use Values of the Reefs to Residents and Visitors

This chapter describes the methods used to estimate the use values of the reefs that were not presented in the Final Report in the interest of brevity. The use values solicited during both the resident and visitor surveys pertain to use of the reefs in all four south Florida counties - Palm Beach, Broward, Miami-Dade and Monroe.

In this study, four types of use values were estimated: (1) the value to reef users of maintaining the natural reefs in their existing condition; (2) the value to reef users of maintaining the artificial reefs in their existing condition; (3) the value to reef users of maintaining both the artificial and natural reefs in their existing condition and (4) the value to reef users of adding and maintaining additional artificial reefs.

In general, use value is the maximum amount of money that reef users are willing to pay to maintain the reefs in their existing condition and to add more artificial reefs to the system. Use value was measured in terms of per party per trip for existing natural and artificial reefs and per party per year for new artificial reefs. For presentation, values were normalized to values per person-day of reef-related activity so that the use values can be compared to use values estimated in other studies. Use value is also presented in aggregate for all users of the reef system.

3.1 Use Value - Residents

For the survey section on reef use value, the resident sample was split with half getting questions about their values for natural reefs, artificial reefs and a combined program for natural and artificial reefs. The other half of the resident boater sample received a version of the questionnaire that only asked for their values for new artificial reefs.

For the natural reefs, artificial reefs, and the combined natural and artificial reef programs, the questionnaire included the following:

"Suppose there was a plan to maintain the health and condition of natural reefs in southeast Florida. First, consider your total costs for your last boating trip in southeast Florida including travel expenses, lodging, and all boating expenses. If your costs for this trip would have been $___ higher, would you have been willing to pay this amount to maintain the natural reefs in their current condition?"

The respondent was simply asked to respond "YES" or "NO" to the given dollar amount. Dollar amounts of $10, $50, $100, $200 and $500 were randomly assigned. If the respondent said "NO", then a follow-up question was asked regarding why they said "NO". This will be discussed below under Protests/Scenario Rejection.

Next the respondent was asked the following:

"Now suppose there was a plan to maintain the health and condition of the artificial reefs in southeast Florida and that this was the only plan you were asked to consider. Think about your total costs for your last boating trip in southeast Florida again including travel expenses, lodging, and all boating expenses. If your total costs for this trip would have been $___ higher, would you have been willing to pay this amount to maintain the artificial reefs in their existing condition?"

Again the respondent was asked for a 'YES" or "NO" response, and if "NO", then a question asking for the reason for saying "NO". The randomly assigned dollar amounts were the same as used for the natural reefs.

Next the respondent was asked the following:

"Finally, suppose that both of these plans to maintain the existing condition of natural and artificial reefs in southeast Florida were put together into a combined program. Consider once again your total costs for your last boating trip in southeast Florida including travel expenses, lodging, and all boating expenses. If you total costs for this trip would have been $____ higher, would you have been willing to pay this amount to maintain the natural and artificial reefs in their existing condition?"

Again the respondent was asked for a "YES" or "NO" response. The dollar amounts were doubled from the previous amounts for the separate natural ref and artificial reef programs (e.g., $20, $100, $200, $400 and $1,000). If respondent answered "NO", then again they were asked the reason for saying "NO".

Preceding these questions were questions about reef trip costs on the respondent's recent reef-using day on a per party basis. For all residents, a trip is equal to a day. Therefore, the respondent was fully aware of his/her costs on the last trip.

The data can be analyzed either using a dichotomous choice model or the Turnbull Method. Use values reported in the main report were estimated using the logit form of the dichotomous choice model approach. Here, also, the results using the Turnbull Method are presented.

Logit Model. Use of the logit equation in this study can be considered as a cumulative probability distribution function where the underlying probability density function provides the probability of an event occurring given values for the parameters of the event. For the natural reef example, the estimated logit equation provides the probability that a respondent will say yes to paying a certain value to maintain the natural reefs in their existing condition (called WTP bid) given the respondent's household income, age, boating experience and other characteristics. The underlying probability density function (the first derivative of the cumulative distribution function with respect to the WTP bid) tells us the extent to which respondents change their answer from yes to no as the willingness-to-pay bid increases. This provides us with information

regarding respondents' maximum willingness-to-pay, which is the measure of value that we are trying to estimate.

The expected value (or mean) of the willingness-to-pay (WTP) among all reef users is the mathematical integral over the range of possible willingness-to-pay values of each willingness to pay value times the value of the probability density function at that WTP value. This expected value of willingness-to-pay is the measure of reef user values reported in the Final Report and Technical Appendix.

The survey responses were used to estimate the values of three logit equations: one for the natural reef program, one for the artificial reef program and one for the combined programs. The dependent variable is 0 for no and 1 for yes. The independent variables (or explanatory variables) are described in this section.

To estimate values per party per day, the data were pooled for all counties. A logit model was used to estimate per party per day values. The logit model tested for differences in WTP by County, activity, household income, age of respondent, years of boating experience in South Florida, race/ethnicity, sex, length of boat owned, and whether a member of a fishing or diving club. The definitions for all the variables used are included in Table A.3.1-1.

Table A.3.1-1
Definitions of Variables Used in Dichotomous Choice Models

Variable	Definition
WTPNR	Willingness to Pay for Natural Reef Program (1=Yes, 0=No)
WTPAR	Willingness to Pay for Artificial Reef Program (1=Yes, 0=No)
WTPNAR	Willingness to Pay for Combined Natural and Artificial Reef Programs (1=Yes, 0=No)
WTPARNP	Willingness to Pay for New Artificial Reefs Program (1=Yes, 0=No)
BIDNR	Randomly Assigned Dollar Amount for Natural Reef Program. Dollars Per Party Per Trip ($10, $50, $100, $200, $500 and $1,000).
LBIDNR	Natural Logarithm of BIDNR.
BIDAR	Randomly Assigned Dollar Amount for Artificial Reef Program. Dollars Per Party Per Trip ($10, $50, $100, $200, $500 and $1,000).
LBIDAR	Natural Logarithm of BIDAR.
BIDNAR	Randomly Assigned Dollar Amount for Combined Natural and Artificial Reef Programs. Dollars Per Party Per Trip ($20, $100, $200, $400, $1,000 and $2,000). Double amount for natural or artificial reef programs.
LBIDNAR	Natural Logarithm of BIDNAR.
BIDARNP	Randomly Assigned Dollar Amount for New Artificial Reef Program. Dollars Per Party Per Year ($5, $10, $20, $30, $50 and $100).
LBIDARNP	Natural Logarithm of BIDARNP.
DADE	Dummy Variable for County where Interviewed (1=Miami-Dade, 0=Other). Miami-Dade is the reference County in model estimation.
BROWARD	Dummy Variable for County where Interviewed (1=Broward, 0=Other).

Table A.3.1-1
Definitions of Variables Used in Dichotomous Choice Models

Variable	Definition
PALMB	Dummy Variable for County where Interviewed (1=Palm Beach, 0=Other).
MONROE	Dummy Variable for County where Interviewed (1=Monroe, 0=Other).
INC25K	Dummy Variable for Household Income (1=less than $25,000, 0=Other). This was the reference Household Income in model estimation.
INC50K	Dummy Variable for Household Income (1=$25,000 to $49,999, 0=Other).
INC100K	Dummy Variable for Household Income (1=$50,000 to $99,999, 0=Other).
INC150K	Dummy Variable for Household Income (1=$100,000 and Greater, 0=Other).
INCMISS	Dummy Variable for Household Income (1=Income Missing, 0=Other).
AGEH	Age of Respondent in Years divided by 10.
LAGEH	Natural Logarithm of AGEH.
EXPER	Number of Years of Boating Experience in South Florida.
LEXPER	Natural Logarithm of EXPER.
HISPANIC	Dummy Variable for Ethnic Background (1=Hispanic or Latino, 0=Other).
WHITE	Dummy Variable for Race (1=White, 0=Non White).
MALE	Sex of Respondent (1=Male, 0=Female).
BLENGTH	Length of Boat (in feet).
LBLENGTH	Natural Logarithm of BLENGTH.
CLUB	Dummy Variable for Membership in fishing or diving club (1=Yes, 0=No).
SNORKNR	Dummy Variable for Activity/Reef Type (1=Snorkeling on Natural Reefs, 0=Other).
SNORKAR	Dummy Variable for Activity/Reef Type (1=Snorkeling on Artificial Reefs, 0=Other).
SCUBANR	Dummy Variable for Activity/Reef Type (1=Scuba Diving on Natural Reefs, 0=Other).
SCUBAAR	Dummy Variable for Activity/Reef Type (1=Scuba Diving on Artificial Reefs, 0=Other).
FISHNR	Dummy Variable for Activity/Reef Type (1=Fishing on Natural Reefs, 0=Other).
FISHAR	Dummy Variable for Activity/Reef Type (1=Fishing on Artificial Reefs, 0=Other).

Separate models were estimated for each of the four reef programs (e.g., natural reefs, existing artificial reefs, natural & artificial reefs combined and new artificial reefs). For the natural reef, existing artificial reefs and the combined programs, the only significant difference in user values were found for those with income greater than $100,000. This group had a higher willingness to pay to maintain the reefs in their existing condition than other reef users. There were no other differences found. The logit model did not produce different per party per day values by county, and because party sizes were not significantly different by county the estimated values per person-day were also the same across counties for each of the reef valuation programs. The estimated per party per day values were $32.55 for the natural reefs, $11.31 for the artificial reefs and $12.94 for the combined program. The final models used for estimating values are included in Table 2.1.3-1 and 2.1.3-3 of the Final Report. Appendix tables are included with the full set of modeled variables: Table A.3.1-2 (Natural Reefs), Table A.3.1-3 (Artificial Reefs) and Table A.3.1-4 (Natural & Artificial Reefs combined) at the end of this Chapter.

To estimate total annual use values for each county, the number of party-days are multiplied by the estimated values per party per day. The value per person-day is then estimated by dividing the total annual use value by the total number of person-days. This normalized value per person-day can be compared with results from other studies. The calculations are shown in the following appendix tables: Table A.3.1-5 (Natural Reefs), Table A.3.1-6 (Artificial Reefs) and Table A.3.1-7 (Natural & Artificial Reefs Combined) at the end of this Chapter.

The results are consistent with the idea that natural reefs are preferred to artificial reefs. Across all counties, the average per person-day value of the natural reefs was $8.49 versus $2.97 for artificial reefs. Total use is also higher for natural versus artificial reefs. Across all counties, natural reef use was over 9.3 million person-days versus about 4.9 million person-days for artificial reefs. This translated into an estimate of total annual use value of over $79 million for natural reefs and $14.5 million for artificial reefs. Capitalizing the annual use values, using a three percent interest rate, yields asset values of over $2.6 billion for the natural reefs and $484 million for the artificial reefs.

The sum of the values for the individual reef programs can be different from the value for the combined programs. This result is not inconsistent with the literature on embedded values. Randall and Hoehn (1992) have shown that this type of result is consistent with economic theory. The combined programs have exceeded the income constraints of many respondents and/or many respondents had value for only one of the programs. So we conclude that our estimated values for the natural and artificial reefs valued separately and together are valid estimates. Bear in mind that willingness to pay for the combined programs is a different scenario from willingness to pay for the individual programs.

The second half of the resident sample was asked about their willingness to pay for new artificial reefs. The following was presented to this sample:

"Local and state government agencies are being asked to evaluate how users of artificial reefs value new artificial reefs. Artificial reef programs cost money. Suppose that the government proposed that all users of the artificial reefs would pay for all the newly constructed reefs. Fishermen and divers with their own boats would pay for a decal as part of their boat registration and/or, if they used a charter/party boat or rental boat (pay operation), they would pay for the costs through higher fees charged by the pay operation. The money would go into a trust fund that could only be used for the construction and maintenance of artificial reefs in southeast Florida."

Would you be willing to pay $___ per year when you renew your boat registration and/or the amount in higher fees to a charter/party boat or rental operation to fund this program?

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The respondent was asked to respond either "YES" or "NO" to the following randomly assigned dollar amounts: $5, $10, $20, $30, $50 and $100. If "NO", then they were asked their reason for saying "NO".

As with the three reef programs above, a logit model was estimated. The logit model estimated for the new artificial reef program found some statistically significant differences. Those from Palm Beach and Broward counties had higher willingness to pay than those from Miami-Dade and Monroe counties. Snorkelers and scuba divers had higher values than those who participated in fishing activities. The only other statistically significant variable was household income. As household income levels increased, so did willingness to pay for new artificial reefs. On a per party per day basis, the estimated values ranged from a high of $3.60 for snorkelers and scuba divers from Palm Beach and Broward counties to a low of $0.63 for those who participated in fishing activities off Miami-Dade and Monroe counties. The results for the final model used for estimating the use values for new artificial reef are included in Table 2.1.3-3 of the Final Report. For the model that includes the full compliment of explanatory variables, see appendix Table A.3.1-8.

As with the other three programs, the estimated per party per day values were multiplied by the total party-days spent on artificial reefs by artificial reefs users in each county to get total annual use value for each county. The total annual use values were then divided by the total annual person-days of artificial reef use in each county to get an estimate of the value per person-day. Again, this normalized value per person-day can be compared with results from other studies. These calculations are included in appendix Table A.3.1-9.

On a per person-day basis, the estimated values ranged from a low of 28 cents in Miami-Dade County to a high of 72 cents in Palm Beach County. Across all four counties, the average was 49 cents per person-day. These values may seem low, but one should recall that these normalized values are obtained by dividing total annual use value for new artificial reefs by all use on existing artificial reefs. Total use across all counties was almost 4.9 million person-days with an annual use value of almost $2.4 million.

Turnbull Method. The Turnbull Method has been advocated as producing a lower bound or conservative estimate of value (Carson et. al., 1994). The method is simple to implement, since it only requires a cross-tabulation of the randomly assigned dollar amounts with the yes/no responses. The method was implemented including all reef users and by limiting the sample to users of each type of reef (i.e., only natural reef users for valuing natural reefs and only artificial reef users for valuing artificial reefs). For the combined natural and artificial reef programs all reef users were included.

For the sample of users only, the Turnbull Method calculations are included in **Table** A.3.1-10 (Natural Reefs), Table A.3.1-11 (Artificial Reefs), Table A.3.1-12 (Natural & Artificial Reefs combined), and Table A.3.1-13 (New Artificial Reefs). The Turnbull Method does not allow for

estimating different values for different counties or for other socioeconomic factors because of limits in sample size available. So for each type of reef program only one estimate of use value per party day is generated using this method. For natural reefs, this method yielded an estimate of $126.87 per party per day. For artificial reefs, the estimate is $105.08. For the natural & artificial reefs combined, the estimate is $115.00. For new artificial reefs, this method yielded an estimate of $59.00 per party per year. Using an estimate of the sample average number of artificial reef use days for artificial reef users (14.82), the use value per party per day for new artificial reefs is estimated at $3.98.

For the sample of all reef users regardless of reef type, the Turnbull Method calculations are included in Table A.3.1-14 (Natural Reefs), Table A.3.1-15 (Artificial Reefs), Table A.3.1-16 (Natural & Artificial Reefs combined), and Table A.3.1-17 (New Artificial Reefs). For natural reefs, this method yielded an estimate of $124.97 per party per day. For artificial reefs, the estimate is $77.88. For the natural & artificial reefs combined, the estimate is $115.00 (same as above). For new artificial reefs, this method yielded an estimate of $51.50 per party per year. Using an estimate of the sample average number of artificial reef use days for artificial reef users (11.1), the use value per party per day for new artificial reefs is estimate at $4.64.

Estimates of use value per party per day were extrapolated from sample to population using the estimates of party days of reef use for each type of reef in each county. Multiplying party days times use value per party per day yields an estimate of total annual use value. This total annual use value is then divided by the estimate of the total annual person-days of activity on each type of reef to yield an estimate of the use value per person-day. This is a normalized value that can be compared with other studies. Asset value is calculated as total annual value divided by .03 or three percent.

For the sample of users only, these calculations are included in Table A.3.1-18 (Natural Reefs), Table A.3.1-19 (Artificial Reefs), Table A.3.2-20 (Natural & Artificial Reefs combined) and Table A.3.1-21 (New Artificial Reefs). For the sample of all reef users, the calculations are included in Table A.3.1-22 (Natural Reefs), Table A.3.1-23 (Artificial Reefs), Table A.3.1-24 (Natural & Artificial Reefs combined) and Table A.3.1-25 (New Artificial Reefs).

Comparison of Logit Model and Turnbull Method Results. Comparing the results from the logit model with the results derived using the Turnbull Method (sample of users only), it was observed that the Turnbull Method yields estimates on a per party per day basis 3.9 times higher for natural reef use, 9.3 times higher for artificial reef use, 9.9 times higher for natural and artificial reefs combined, and 2.1 times higher for new artificial reefs. So in this application, the Turnbull Method did not yield a lower bound conservative estimate as past research had indicated.

In this application of the Turnbull Method, a large proportion of the value is attributed to the upper interval ($500 to infinity for the separate natural reef and artificial reef programs, $1,000

to infinity for the combined programs, and $500 to infinity for the new artificial reef program). For natural reefs 99.87% of the value is attributed to the upper interval. For artificial reefs 99.11% of value is attributed to the upper interval. It was 82.52% for the natural and artificial reef combined and 42.37% for new artificial reefs. This would appear to indicate a problem with too high a percent indicating a "YES" response to the top dollar amount used. More research is needed to test how this might affect the logit model results.

Protests/Scenario Rejection. As mentioned above, when the respondent answered "NO" to a valuation question, he/she was asked for their reasons for saying "NO". Table A.3.1-26 summarizes the responses for each valuation question. The response "A" (a contribution of that amount is more than the reefs are worth to me) is the expected economic response. Other responses (included in the Other Reason category) include responses that are also expected economic responses such as he/she would go elsewhere or would do something else (substitution). All of the other responses are interpreted either as protests to the questions and/or they indicated the person rejected the scenario for the valuation exercise. Protests and scenario rejections might usually be eliminated from the sample in estimating values because they might have been willing to pay the assigned dollar amount, they just did not like something about the question or scenario.

The relationship between the randomly assigned dollar amounts and those responses that indicate a protest and/or scenario rejection was reviewed. There was a high correlation between the randomly assigned dollar amounts and the person giving a protest and/or scenario rejection reason for saying "NO". As the dollar amounts increased, so did the proportion of protest and/or scenario rejection responses. This finding affirmed that no one should be eliminated as true protestors and/or for scenario rejection. There appears to be a simple reaction to the high dollar amounts and this is the expected result. Table A.3.1-27 summarizes the relationship between protestors/scenario rejection and dollar amounts.

3.2 Use Value - Visitors

The information obtained on visitor use values for the reefs in Southeast Florida can be evaluated using either the Turnbull Method or the Dichotomous Choice Model Method. A disadvantage of the Turnbull Method is that it requires extremely large sample sizes to allow for separate estimates of use value for different user groups. Available sample sizes would not allow for providing separate estimates for each county or activity-boating mode (e.g., snorkeling from private/rental boat, scuba diving from charter/party boat, bottom fishing from a private/rental boat, etc.) using the Turnbull Method. For the Final Report, only the results from the Dichotomous Choice Model Method employing a logit model were presented. In this Technical Appendix, the results from logit and probit models, plus the results using the Turnbull Method are presented. For the Turnbull Method, estimates were provided based on samples of all reef users and users of each type of reef.

Logit Model. A logit model was used on all the visitor data pooled across all four counties and the two seasons (e.g., summer and winter). The logit model was used to test for differences by county, season, activity-boat mode, type of reef used (e.g., natural or artificial), and various user characteristics such as, household income, age of respondent, race/ethnicity, sex, boat ownership, years of boating experience in South Florida and whether the respondent was a member of a fishing or diving club. The definitions of all the variables used in estimation are provided in Table A.3.2-1.

Table A.3.2-1
Definitions of Variables Used in Dichotomous Choice Models

Variable	Definition
WTPNR	Willingness to Pay for Natural Reef Program (1=Yes, 0=No)
WTPAR	Willingness to Pay for Artificial Reef Program (1=Yes, 0=No)
WTPNAR	Willingness to Pay for Combined Natural and Artificial Reef Programs (1=Yes, 0=No)
WTPARNP	Willingness to Pay for New Artificial Reefs Program (1=Yes, 0=No)
Q34a	Randomly Assigned Dollar Amount for Natural Reef Program. Dollars Per Party Per Trip ($10, $50, $100, $200, $500 and $1,000).
LQ34a	Natural Logarithm of Q34a.
Q36a	Randomly Assigned Dollar Amount for Artificial Reef Program. Dollars Per Party Per Trip ($10, $50, $100, $200, $500 and $1,000).
LQ36a	Natural Logarithm of Q36a.
Q38a	Randomly Assigned Dollar Amount for Combined Natural and Artificial Reef Programs. Dollars Per Party Per Trip ($20, $100, $200, $400, $1,000 and $2,000). Double amount for natural or artificial reef programs.
LQ38a	Natural Logarithm of Q38a.
Q40a	Randomly Assigned Dollar Amount for New Artificial Reef Program. Dollars Party Per Year ($5, $10, $20, $30, $50 and $100).
LQ40a	Natural Logarithm of LQ40a.
SUMMER	Dummy Variable for Season Visitors Sampled (1=Summer, 0=Winter).
DADE	Dummy Variable for County where Interviewed (1=Miami-Dade, 0=Other). Miami-Dade is the reference County in model estimation.
BROWARD	Dummy Variable for County where Interviewed (1=Broward, 0=Other).
PALMB	Dummy Variable for County where Interviewed (1=Palm Beach, 0=Other).
MONROE	Dummy Variable for County where Interviewed (1=Monroe, 0=Other).
INC25K	Dummy Variable for Household Income (1=less than $25,000, 0=Other). This was the reference Household Income in model estimation.
INC50K	Dummy Variable for Household Income (1=$25,000 to $49,999, 0=Other).
INC100K	Dummy Variable for Household Income (1=$50,000 to $99,999, 0=Other).
INC150K	Dummy Variable for Household Income (1=$100,000 and Greater, 0=Other).
INCMISS	Dummy Variable for Household Income (1=Income Missing, 0=Other).
AGEH	Age of Respondent in Years divided by 10.
LAGEH	Natural Logarithm of AGEH.

Table A.3.2-1
Definitions of Variables Used in Dichotomous Choice Models

Variable	Definition
EXPER	Number of Years of Boating Experience in South Florida.
LEXPER	Natural Logarithm of EXPER.
HISPANIC	Dummy Variable for Ethnic Background (1=Hispanic or Latino, 0=Other).
WHITE	Dummy Variable for Race (1=White, 0=Non White).
MALE	Sex of Respondent (1=Male, 0=Female).
OWNBOAT	Dummy Variable for Boat Ownership (1=Yes, 0=No).
CLUB	Dummy Variable for Membership in fishing or diving club (1=Yes, 0=No).
NREEF	Dummy Variable for type of reef used (1=Natural Reef, 0=Artificial Reef Only).
AREEF	Dummy Variable for type of reef used (1=Artificial Reef, 0=Natural Reef Only).
NAREEF	Dummy Variable for type of reef use (1=Both Natural and Artificial Reef, 0=Only one type of reef used).
SNORKC	Dummy Variable for Activity/Boat Mode (1=Snorkeling from Charter/Party Boat, 0=Other).
SNORKPR	Dummy Variable for Activity/Boat Mode (1=Snorkeling from Private/Rental Boat, 0=Other).
SCUBAC	Dummy Variable for Activity/Boat Mode (1=Scuba Diving from Charter/Party Boat, 0=Other).
SCUBAPR	Dummy Variable for Activity/Boat Mode (1=Scuba Diving from Private/Rental Boat, 0=Other).
FSHBOTC	Dummy Variable for Activity/Boat Mode (1=Bottom Fishing from Charter Boat, Boat, 0=Other).
FSHBOTPY	Dummy Variable for Activity/Boat Mode (1=Bottom Fishing from Party Boat, Boat, 0=Other).
FSHBOTPR	Dummy Variable for Activity/Boat Mode (1=Bottom Fishing from Private/Rental Boat, 0=Other).
FSHOTH	Dummy Variable for Activity/Boat Mode (1=All Fishing Other than Bottom Fishing, 0=Other).
GLASSBOT	Dummy Variable for Activity/Boat Mode (1=Glass-bottom Boat Ride, 0=Other).
VIEW	Dummy Variable for Activity/Boat Mode (1=View from Private/Rental Boat, Boat, 0=Other).
OTHBOAT	Dummy Variable for Activity/Boat Mode (1=Other Boating Activities, Boat, 0=Other).

Separate models were estimated for each of the four reef programs (e.g., natural reefs, existing artificial reefs, natural & artificial reefs combined, and new artificial reefs). For all four reef programs, significant differences were found by county. On a per party per trip and per person-trip basis, Miami-Dade County had the lowest values for all four reef programs. In order from lowest to highest values: Miami-Dade, Palm Beach, Broward, and Monroe.

Significant differences were also found by activity-boat modes, but these differences were dependent on reef type and county. For natural reefs, there were no differences that could be identified for Miami-Dade County. For Palm Beach and Broward counties, scuba divers from charter/party boats had significantly higher values than users from all other activity-boat modes. For Monroe County, snorkelers from private/rental boats and scuba divers from charter/party boats had higher values than users from all other activity-boat modes.

For existing artificial reefs, there were no differences found by activity-boat modes for Miami-Dade, Palm Beach and Broward counties. For Monroe County, differences were found for snorkelers from private/rental boats and for those who did bottom fishing from private/rental boats. These latter user groups were, holding all other factors constant, willing to pay more than those who used other activity-boat modes.

For the combined natural and artificial reef program, there were no differences found by activity-boat modes in Miami-Dade County. For Palm Beach and Broward counties, scuba divers from charter/party boats were willing to pay more than those who used other activity-boat modes. For Monroe County, snorkelers from private/rental boats, scuba divers from charter/party boats, and those who did bottom fishing from private/rental boats had higher willingness to pay than those who used other activity-boat modes.

For the new artificial reefs, there were no differences found by activity-boat mode in Miami-Dade County. For Palm Beach, Broward and Monroe counties, scuba divers from charter/party boats had a higher willingness to pay than those who used all other activity-boat modes.

Season was a significant factor in all estimated models. Summer season visitors had significantly lower willingness to pay than winter season visitors. This influenced the decision on how to calculate total annual value. Separate values were calculated for the summer and winter seasons and then added together to get annual values.

Household income was a significant factor in all of the estimated logit models. The higher the household income, the higher the willingness to pay. Race/ethnicity was mixed. There were no significant differences for Hispanic visitors. Whites (95 percent of the visitors) had higher willingness to pay for natural reefs, existing artificial reefs and the combination of natural and artificial reefs, but being white was not significant for new artificial reefs.

Sex was only significant for existing artificial reefs. Males (74 percent of the sample reef users) had higher willingness to pay than female reef users. Boat ownership was significant for existing artificial reefs and for the combined natural and artificial reef programs. Boat owners had higher willingness to pay than non-boat owners, holding all other factors constant, for these two programs.

All other factors tested were not significant for any of the four programs. These factors included age, years of experience in South Florida boating and membership in a fishing or diving club.

The user values calculated using the estimated logit model are included in the Final Report Table 2.2.3-1 (Natural Reefs) and Table 2.2.3-2. The parameter estimates of the logit model used to estimate these values are provided in Tables A.3.2-2 through A.3.2-5.

Appendix tables that include first-run logit models with all variables tested for significance are Table A.3.2-6 (Natural Reefs), Table A.3.2-7 (Artificial Reefs), Table A.3.2-8 (Natural and Artificial Reefs—The Combined Programs), and Table A.3.2-9 (New Artificial Reefs). The probit models rejected because they resulted in negative values are included in Table A.3.2-10 (Natural Reefs), Table A.3.2-11 (Artificial Reefs), Table A.3.2-12 (Natural and Artificial Reefs—The Combined Programs), and Table A.3.2-13 (New Artificial Reefs).

The logit model was used to estimate values per party per trip for each of the sampled users for each reef program. For new artificial reefs, this required an additional calculation since the question asked for a yearly amount instead of an amount per trip. For new artificial reefs, the per party per year estimates were divided by the number of trips that the person made to South Florida on which they used artificial reefs over the past 12 months. Separate sample averages were then estimated for each County, Season and Activity-boat mode for which there were significant differences. These per party per trip values were then divided by the average party size (number of people for which the respondent was paying for trip expenses) by county and activity-boat mode to get estimates of willingness to pay per person-trip. Mean values per party per trip are included in Table A.3.2-14 (Natural Reefs), Table A.3.2-15 (Artificial Reefs), Table A.3.2-16 (Natural and Artificial Reefs—The Combined Programs), and Table A.3.2-17 (New Artificial Reefs). Mean values for party size by county and activity type are included in Table A.3.2-18.

Estimation of Annual User Value and User Value Per Person-day. To estimate annual user values, the per person-trip values were multiplied by estimates of the number of person-trips. This was done by County, Season and Activity-boat mode.

The use values per person-day were derived by dividing the total annual user value by the relevant number of total annual person-days. Again, the value per person-day is a standardized measure that can be compared with results from other studies. These calculations are shown in Appendix Tables with one table for each county and type of reef. Tables A.3.2-19 to -22 (Natural Reefs), Tables A.3.2-23 to -26 (Artificial Reefs), Tables A.3.2-27 to -30 (Natural and Artificial Reefs—The Combined Programs), and Tables A.3.2-31 to -34 (New Artificial Reefs). Annual User Values by type of Reef and County are summarized in Table A.3.2-35.

Asset Value of the Reefs. Annual user value shows the flow of value for a given period of time or how much people are willing to pay per year for their reef use. Asset value is the amount

someone would be willing to pay for the reefs if they could own the reefs and charge a price to those using the reefs. Calculation of asset values requires information about the expected life of the asset (reefs). A simplifying assumption was used, inferring that the reefs will exist into perpetuity (indefinite future). It was also assumed that the real annual user value (value net of inflation) remains constant each year. This means that the amount of use remains constant and the value per unit of use remains constant.

These assumptions are not likely to be true. It might be expected that both the amount of use and the value per unit of use will rise in the future as the reefs become scarce goods i.e., short in supply relative to demand. A real interest rate (discount rate net of inflation) of three percent was also used to translate future dollars into present day dollars. Given the above assumptions, estimates of the asset value are considered lower bound or conservative. The asset values are summarized in Table A.3.2-35.

User Value by Type of Reef. As discussed above, user values were estimated for four different reef programs. For those asked about existing natural and artificial reefs, they were first asked about their willingness to pay for natural reefs, then about their willingness to pay for artificial reefs. In a third step, they were then asked about their willingness to pay for a combined natural and artificial reef program.

For the separate natural and artificial reef programs, the same randomly assigned dollar amounts were used ($10, $50, $100, $200, $500 and $1,000). For the combined program, these amounts were doubled ($20, $100, $200, $400, $1,000, and $2,000). The possibility exists that a respondent might say "yes" to $500 for the natural reef program and $500 for the artificial reef program, but say "no" to $1,000 for the combined program. This would result in an inconsistency for the values of all the natural and artificial reefs because the value of the combined program would be less than the sum of the two separate programs.

Almost all of the results had the above referenced inconsistency i.e., that the willingness to pay for the combined natural and artificial reef programs was less than adding-up the values of the two programs valued individually. This result is not inconsistent with the literature on embedded values. Randall and Hoehn (1995) have shown that this type of result is consistent with economic theory. The combined programs have exceeded the income constraints of many respondents and/or many respondents had value for only one of the programs. So it was concluded that estimated values for the natural and artificial reefs valued separately were valid estimates.

Turnbull Method. The Turnbull Method has been advocated as producing a lower bound or conservative estimate of value (Carson et. al., 1994). The method is simple to implement, since it only requires a cross-tabulation of the randomly assigned dollar amounts with the yes/no responses.

Values were estimated using the Turnbull Method for summer and winter season visitors separately for each of the four reef valuation programs. The Turnbull Method was also used to estimate values using two types of samples: a sample that included all reef users and a sample that included only users of the reef type targeted in the program.

Two of the results did not have well-behaved distributions (i.e., the percent of respondents saying "Yes" to the randomly assigned dollar amount did not decline monotonically with the rise in dollar amounts). This indicates that the sample size is not sufficient to use the Turnbull Method. The two results were for the Natural Reef Program (Natural Reef Users Only during the summer season) and the Natural & Artificial Reef Program Combined during the summer season. This leads to negative values using the Turnbull Method. For the summer sample of visitors valuing natural reefs, a higher percent of visitors were willing to pay $1,000 than $500. For the summer sample of visitors valuing the natural & artificial reefs combined, a higher percent of visitors were willing to pay $2,000 than $1,000.

The calculations for users only are shown in Table A.3.2-36 (Natural Reefs-Summer), Table A.3.2-37 (Natural Reefs-Winter), Table A.3.2-38 (Artificial Reefs-Summer), Table A.3.2-39 (Artificial Reefs-Winter), Table A.3.2-40 (New Artificial reefs-Summer), and Table A.3.2-41 (New Artificial Reefs-Winter). For the Natural & Artificial Reefs Combined, all reef users are used. The calculations for this program are included in Table A.3.2-42 (summer) and Table A3.2-43 (winter).

The calculations using the responses of all reef users are included in appendix Table A.3.2-44 (Natural Reef-Summer), Table A.3.2-45 (Natural Reef-Winter), Table A.3.2-46 (Artificial Reefs-Summer), Table A.3.2-47 (Artificial Reefs-Winter), Table A.3.2-48 (New Artificial Reefs-Summer) and Table A.3.2-49 (New Artificial Reefs-Winter).

Table A.3.2-50 summarizes the results for all the estimates derived using the Turnbull Method. For each type of reef, winter values were always higher than summer values, which agrees with the logit model results. However, the Turnbull Method results are generally higher than those obtained using the logit model. So in this application of the Turnbull Method it did not yield lower bound estimates. Limiting the samples to users only generally resulted in higher values, except for natural reefs-winter sample and artificial reefs-summer sample.

The above results yield estimates on a per party per trip basis. To extrapolate from sample to population, these estimates were converted to value per person-trip. Table A.3.2-51 includes estimates of the mean party sizes by season and type of reef use and Table A.3.2-52 includes estimates of the mean number of annual trips of artificial reef use used in estimating the value of new artificial reefs on a per person-trip basis. For natural reefs, artificial reefs and natural & artificial reefs combined, per party per trip values were divided by the average party size to get value per person-trip. For the new artificial reefs, the per party per trip values were first divided

by the average number of trips to get value per party per trip. The result was then divided by the average party size to get value per person-trip.

Estimation of Annual Use Value, Use Value Per Person-day and Asset Value. In estimating annual use values, use values per person-day and asset values, separate values was calculated by county. Thus, for extrapolating value from sample to population, the estimates of reef use in each county were used for each season. Tables A.3.2-53 to -56 show the calculations for the four counties. Again, the use value per person-trip for the summer and winter seasons is the same across counties using the Turnbull Method. It is the varying amount of use in each county that determines total annual value, value per person-day and asset value. Asset value is calculated in the same way as was done for the logit application discussed above (i.e., annual user value divided by three percent).

Table A.3.1-2 (Residents)				
Logit Model for Natural Reef Valuation-Test for Significant Variables				
Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	0.660905	0.466	0.6412	1.000000
LBIDNR	-0.605814	-9.070	0.0000	4.444262
LBLENGTH	0.160752	0.441	0.6590	3.149844
MALE	0.012271	0.041	0.9674	0.903955
WHITE	0.101949	0.220	0.8260	0.960452
INC50k	1.016754	1.925	0.0543	0.172316
INC100k	1.098464	2.175	0.0296	0.384181
INC150k	1.586238	3.105	0.0019	0.341808
INCMISS	0.462573	0.716	0.4737	0.053672
LAGEH	-0.349782	-0.872	0.3830	1.578540
LEXPER	-0.118520	-1.026	0.3051	2.880361
BROWARD	0.115687	0.438	0.6616	0.214689
PALMB	0.341156	1.279	0.2008	0.201977
MONROE	0.059618	0.239	0.8110	0.353107
SNORKNR	0.451071	2.259	0.0239	0.637007
SCUBANR	-0.097005	-0.511	0.6094	0.389831
FISHNR	0.011178	0.056	0.9556	0.750000
CLUB	0.306648	1.430	0.1528	0.204802

Notes:

Dependent Variable is WTPNR Mean=.3559

N=708

Log likelihood function -399.6129

Restricted log likelihood -460.9376

Chi-squared 122.6494

Degrees of freedom 17

Significance level .00000

Percent correct predictions 73.02

	Table A.3.1-3 (Residents)			
Logit Model for Artificial Reef Valuation-Test for Significant Variables				
Independent Variable	**Coefficient (b)**	**b/standard error (t-value)**	**Probability (t-value)**	**Mean of Independent Variable**
Constant	0.956849	0.468	0.6400	1.000000
LBIDAR	-0.632915	-6.694	0.0000	4.447416
LBLENGTH	-0.154140	-0.294	0.7689	3.162925
MALE	-0.142783	-0.297	0.7665	0.920673
WHITE	0.491448	0.727	0.4671	0.954327
INC50k	0.616560	0.908	0.3639	0.151442
INC100k	0.299036	0.467	0.6403	0.375000
INC150k	1.102554	1.713	0.0868	0.355769
INCMISS	-0.882467	-0.904	0.3662	0.060096
LAGEH	-0.156299	-0.272	0.7855	1.545619
LEXPER	0.075413	0.434	0.6640	2.916021
BROWARD	-0.146179	-0.379	0.7050	0.213942
PALMB	-0.106439	-0.281	0.7787	0.206731
MONROE	-0.097813	-0.274	0.7842	0.355769
SNORKAR	0.377407	1.315	0.1886	0.259615
SCUBAAR	0.546012	1.899	0.0575	0.290865
CLUB	0.192181	0.658	0.5104	0.228365

Notes:

Dependent Variable is WTPAR Mean=.2620

N=416

Log likelihood function -202.8965

Restricted log likelihood -239.2659

Chi-squared 72.7388

Degrees of freedom 16

Significance level .00000

Percent correct predictions 71.87

Table A.3.1-4 (Residents)
Logit Model for Natural & Artificial Reef Valuation-Test for Significant Variables

Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	0.044821	0.026	0.9796	1.000000
LBIDNAR	-0.561395	-6.724	0.0000	5.206274
LBLENGTH	0.456506	1.008	0.3133	3.146351
MALE	0.105684	0.263	0.7929	0.911576
WHITE	-0.067188	-0.116	0.9079	0.959807
INC50k	0.366128	0.611	0.5411	0.167203
INC100k	0.293937	0.527	0.5984	0.385852
INC150k	1.038580	1.845	0.0651	0.337621
INCMISS	-0.757943	-0.829	0.4070	0.059486
LAGEH	-0.845380	-1.642	0.1007	1.572714
LEXPER	0.021268	0.137	0.8908	2.907507
BROWARD	-0.020026	-0.058	0.9538	0.213826
PALMB	0.069913	0.202	0.8402	0.204180
MONROE	0.242664	0.758	0.4485	0.355305
SNORKNR	0.318587	1.213	0.2253	0.654341
SCUBANR	0.354362	1.490	0.1361	0.401929
FISHNR	0.095363	0.365	0.7151	0.755627
CLUB	-0.111135	-0.404	0.6866	0.207396

Notes:

Dependent Variable is WTPNAR Mean=.1913

N=622

Log likelihood function -266.2286

Restricted log likelihood -303.6162

Chi-squared 74.77

Degrees of freedom 17

Significance level .00000

Percent correct predictions 81.83

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Natural Reefs
Table A.3.1-5 (Residents)						
Estimated Use Values for Natural Reefs Using the Logit Model, 2000						
Palm Beach						
Snorkeling	86,651	32.55	$2,820,490	326,674	$8.63	$94,016,335
Scuba Diving	151,347	32.55	$4,926,345	584,199	$8.43	$164,211,495
Fishing	259,095	32.55	$8,433,542	992,334	$8.50	$281,118,075
Total	**497,093**	**32.55**	**$16,180,377**	**1,903,207**	**$8.50**	**$539,345,905**
Broward						
Snorkeling	137,873	32.55	$4,487,766	570,794	$7.86	$149,592,205
Scuba Diving	166,899	32.55	$5,432,562	574,133	$9.46	$181,085,415
Fishing	307,005	32.55	$9,993,013	1,292,491	$7.73	$333,100,425
Total	**611,777**	**32.55**	**$19,913,341**	**2,437,418**	**$8.17**	**$663,778,045**
Miami-Dade						
Snorkeling	206,857	32.55	$6,733,195	885,348	$7.61	$224,439,845
Scuba Diving	152,491	32.55	$4,963,582	481,872	$10.30	$165,452,735
Fishing	369,956	32.55	$12,042,068	1,598,210	$7.53	$401,402,260
Total	**729,304**	**32.55**	**$23,738,845**	**2,965,430**	**$8.01**	**$791,294,840**
Monroe						
Snorkeling	212,805	32.55	$6,926,803	827,810	$8.37	$230,893,425
Scuba Diving	87,149	32.55	$2,836,700	228,329	$12.42	$94,556,665
Fishing	368,861	32.55	$12,006,426	1,220,931	$9.83	$400,214,185
Total	**668,815**	**32.55**	**$21,769,928**	**2,277,070**	**$9.56**	**$725,664,275**
All Counties						
Snorkeling	644,186	32.55	$20,968,254	2,610,626	$8.03	$698,941,810
Scuba Diving	557,886	32.55	$18,159,189	1,868,533	$9.72	$605,306,310
Fishing	1,304,917	32.55	$42,475,048	5,103,966	$8.32	$1,415,834,945
Total	**2,506,989**	**32.55**	**$81,602,492**	**9,583,125**	**$8.52**	**$2,720,083,065**

Table A.3.1-6 (Residents)						
Estimated Use Values for Artificial Reefs Using the Logit Model, 2000						
County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Artificial Reefs
Palm Beach						
Snorkeling	76,841	11.31	$869,072	289,691	$3.00	$28,969,057
Scuba Diving	58,857	11.31	$665,673	227,188	$2.93	$22,189,089
Fishing	145,741	11.31	$1,648,331	558,188	$2.95	$54,944,357
Total	**281,439**	**11.31**	**$3,183,075**	**1,075,067**	**$2.96**	**$106,102,503**
Broward						
Snorkeling	38,887	11.31	$439,812	160,992	$2.73	$14,660,399
Scuba Diving	74,985	11.31	$848,080	257,948	$3.29	$28,269,345
Fishing	204,670	11.31	$2,314,818	861,661	$2.69	$77,160,590
Total	**318,542**	**11.31**	**$3,602,710**	**1,280,601**	**$2.81**	**$120,090,334**
Miami-Dade						
Snorkeling	80,445	11.31	$909,833	344,305	$2.64	$30,327,765
Scuba Diving	68,510	11.31	$774,848	216,492	$3.58	$25,828,270
Fishing	226,747	11.31	$2,564,509	979,547	$2.62	$85,483,619
Total	**375,702**	**11.31**	**$4,249,190**	**1,540,343**	**$2.76**	**$141,639,654**
Monroe						
Snorkeling	70,935	$11.31	$802,275	275,937	$2.91	$26,742,495
Scuba Diving	115,523	$11.31	$1,306,565	302,669	$4.32	$43,552,171
Fishing	158,083	$11.31	$1,787,919	523,256	$3.42	$59,597,291
Total	**344,541**	**$11.31**	**$3,896,759**	**1,101,862**	**$3.54**	**$129,891,957**
All Counties						
Snorkeling	267,108	$11.31	$3,020,991	1,070,925	$2.82	$100,699,716
Scuba Diving	317,875	$11.31	$3,595,166	1,004,297	$3.58	$119,838,875
Fishing	735,241	$11.31	$8,315,576	2,922,652	$2.85	$277,185,857
Total	**1,320,224**	**$11.31**	**$14,931,733**	**4,997,873**	**$2.99**	**$497,724,448**

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Natural & Artificial Reefs
Table A.3.1-7 (Residents)						
Estimated Use Values for Natural & Artificial Reefs Using the Logit Model, 2000						
Palm Beach						
Snorkeling	163,492	$12.94	$2,115,586	616,365	$3.43	$70,519,549
Scuba Diving	210,204	$12.94	$2,720,040	811,387	$3.35	$90,667,992
Fishing	404,836	$12.94	$5,238,578	1,550,522	$3.38	$174,619,261
Total	**778,532**	**$12.94**	**$10,074,204**	**2,978,274**	**$3.38**	**$335,806,803**
Broward						
Snorkeling	176,760	$12.94	$2,287,274	731,786	$3.13	$76,242,480
Scuba Diving	241,884	$12.94	$3,129,979	832,081	$3.76	$104,332,632
Fishing	511,675	$12.94	$6,621,075	2,154,152	$3.07	$220,702,483
Total	**930,319**	**$12.94**	**$12,038,328**	**3,718,019**	**$3.24**	**$401,277,595**
Miami-Dade						
Snorkeling	287,302	$12.94	$3,717,688	1,229,653	$3.02	$123,922,929
Scuba Diving	221,001	$12.94	$2,859,753	698,363	$4.09	$95,325,098
Fishing	596,703	$12.94	$7,721,337	2,577,757	$3.00	$257,377,894
Total	**1,105,006**	**$12.94**	**$14,298,778**	**4,505,773**	**$3.17**	**$476,625,921**
Monroe						
Snorkeling	283,740	$12.94	$3,671,596	1,103,747	$3.33	$122,386,520
Scuba Diving	202,671	$12.94	$2,622,563	530,998	$4.94	$87,418,758
Fishing	526,945	$12.94	$6,818,668	1,744,187	$3.91	$227,288,943
Total	**1,013,356**	**$12.94**	**$13,112,827**	**3,378,932**	**$3.88**	**$437,094,221**
All Counties						
Snorkeling	911,294	$12.94	$11,792,144	3,681,551	$3.20	$393,071,479
Scuba Diving	875,760	$12.94	$11,332,334	2,872,829	$3.94	$377,744,480
Fishing	2,040,159	$12.94	$26,399,657	8,026,618	$3.29	$879,988,582
Total	**3,827,213**	**$12.94**	**$49,524,136**	**14,580,998**	**$3.40**	**$1,650,804,541**

Table A.3.1-8 (Residents)				
Logit Model for New Artificial Reef Valuation-Test for Significant Variables				
Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	-4.025321	-1.644	0.1002	1.000000
LBIDARNP	-0.772778	-7.422	0.0000	4.289538
LBLENGTH	0.551279	0.891	0.3727	3.153064
MALE	0.755397	1.201	0.2298	0.932314
WHITE	-0.920007	-1.341	0.1800	0.960699
INC50k	2.433865	2.210	0.0271	0.174672
INC100k	3.220915	3.027	0.0025	0.399563
INC150k	2.912186	2.748	0.0060	0.336245
LAGEH	0.556689	0.931	0.3520	1.535251
LEXPER	-0.061690	-0.360	0.7189	2.871033
BROWARD	0.736215	1.957	0.0503	0.268559
PALMB	0.715743	1.742	0.0815	0.189956
MONROE	0.063543	0.156	0.8761	0.320961
SNORKAR	0.544170	1.866	0.0621	0.283843
SCUBAAR	0.568898	2.038	0.0415	0.340611
CLUB	0.113295	0.331	0.7403	0.179039

Notes:

Dependent Variable is WTPARNP Mean=.2293

N=458

Log likelihood function -193.354

Restricted log likelihood -246.577

Chi-squared 106.446

Degrees of freedom 15

Significance level .00000

Percent Correct Predictions 80.79

			Table A.3.1-9 (Residents)			
		Estimated Use Values for New Artificial Reefs Using the Logit Model, 2000				
County/Activity	**Party-days**	**Use Value Per Party-day**	**Annual Use Value**	**Person-Days**	**Use Value Per Person-day**	**Asset Value New Artificial Reefs**
Palm Beach						
Snorkeling	76,841	$3.60	$276,628	289,691	$0.95	$9,220,920
Scuba Diving	58,857	$3.60	$211,885	227,188	$0.93	$7,062,840
Fishing	145,741	$1.98	$288,567	558,188	$0.52	$9,618,906
Total	**281,439**		**$777,080**	**1,075,067**	**$0.72**	**$25,902,666**
Broward						
Snorkeling	38,887	$3.60	$139,993	160,992	$0.87	$4,666,440
Scuba Diving	74,985	$3.60	$269,946	257,948	$1.05	$8,998,200
Fishing	204,670	$1.72	$352,032	861,661	$0.41	$11,734,413
Total	**318,542**		**$761,972**	**1,280,601**	**$0.60**	**$25,399,053**
Miami-Dade						
Snorkeling	80,445	$1.97	$158,477	344,305	$0.46	$5,282,555
Scuba Diving	68,510	$1.97	$134,965	216,492	$0.62	$4,498,823
Fishing	226,747	$0.63	$142,851	979,547	$0.15	$4,761,687
Total	**375,702**		**$436,292**	**1,540,343**	**$0.28**	**$14,543,065**
Monroe						
Snorkeling	70,935	$1.97	$139,742	275,937	$0.51	$4,658,065
Scuba Diving	115,523	$1.97	$227,580	302,669	$0.75	$7,586,010
Fishing	158,083	$0.63	$99,592	523,256	$0.19	$3,319,743
Total	**344,541**		**$466,915**	**1,101,862**	**$0.42**	**$15,563,818**
All Counties						
Snorkeling	267,108		$714,839	1,070,925	$0.67	$23,827,980
Scuba Diving	317,875		$844,376	1,004,297	$0.84	$28,145,874
Fishing	735,241		$883,042	2,922,652	$0.30	$29,434,749
Total	**1,320,224**		**$2,442,258**	**4,997,873**	**$0.49**	**$81,408,603**

Table A.3.1-10 (Residents)					
Willingness to Pay for Natural Reefs in Southeast Florida: Natural Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $); (5) = (1) * (4)	Sample Size
$0	$10	0.7163	0.2837	$0	141
$10	$50	0.3182	0.3909	$3.91	132
$50	$100	0.22741	0.09079	$4.54	135
$100	$200	0.1966	0.03081	$3.08	117
$200	$500	**0.2534**	**-0.0568**	**-$11.36**	146
$500	INFINITY	0	0.2534	$126.70	N/A
Total Use Value (Sum column 5)				$126.87	
Note:					
Turnbull not well behaved because frequencies of yes do not decline with increase in dollar amounts.					
SOURCE: FLORIDA STATE UNIVERSITY					

Table A.3.1-11 (Residents)					
Willingness to Pay for Artificial Reefs in Southeast Florida: Artificial Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $); (5) = (1) * (4)	Sample Size
$0	$10	0.5571	0.4429	$0.00	70
$10	$50	0.2941	0.2565	$2.57	68
$50	$100	0.1905	0.1036	$5.18	63
$100	$200	0.1579	0.0326	$3.26	57
$200	$500	**0.2083**	**-0.0504**	**-$10.08**	72
$500	INFINITY	0	0.2083	$104.15	N/A
Total Use Value (Sum Column 5)				$105.08	
Note:					
Turnbull not well behaved because frequencies of yes do not decline with increase in dollar amounts.					
SOURCE: FLORIDA STATE UNIVERSITY					

Table A.3.1-12 (Residents)					
Willingness to Pay for Natural & Artificial Reefs in Southeast Florida: All Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Lower Bound for Interval	**Upper Bound for Interval**	**Probability of Payment at Upper Bound**	**Change in Density of Distribution**	**Willingness to Pay (Use Value $); (5) = (1) * (4)**	**Sample Size**
$0	$20	0.4625	0.5375	$0.00	160
$20	$100	0.1497	0.3128	$6.26	147
$100	$200	**0.1545**	**-0.0048**	**-$0.48**	123
$200	$400	0.1069	0.0476	$9.52	131
$400	$1,000	0.0949	0.012	$4.80	158
$1,000	INFINITY	0	0.0949	$94.90	N/A
Total Use Value (Sum column 5)				$115.00	
Note:					
Turnbull not well behaved because frequencies of yes do not decline with increase in dollar amounts.					
SOURCE: FLORIDA STATE UNIVERSITY					

Table A.3.1-13 (Residents)					
Willingness to Pay for New Artificial Reefs in Southeast Florida: Artificial Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $); (5) = (1) * (4)	Sample Size
0	10	0.5059	0.4941	0	85
10	50	0.2192	0.289	$2.89	73
50	100	0.25	-0.0308	-$1.54	72
100	200	0.1765	0.0735	$7.35	68
200	500	0.05	0.1265	$25.30	60
500	INFINITY	0	0.05	$25.00	N/A
Total Use Value (Sum column 5)			[A]	$59.00	
Mean Number of Days Per Year			[B]	14.82	
Use Value Per Party Per Day			[C] = [A] / [B]	$3.98	
SOURCE: FLORIDA STATE UNIVERSITY					

Table A.3.1-14 (Residents)					
Willingness to Pay for Natural Reefs in Southeast Florida: All Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $); (5) = (1) * (4)	Sample Size
$0	$10	0.7091	0.2909	$0	165
$10	$50	0.32	0.3891	$3.89	150
$50	$100	0.2676	0.0524	$2.62	142
$100	$200	0.1955	0.0721	$7.21	133
$200	$500	**0.2405**	**-0.045**	**-$9.00**	158
$500	INFINITY	0	0.2405	$120.25	N/A
Total Use Value (Sum column 5)				$124.97	
Note:					
Turnbull not well behaved because frequencies of yes do not decline with increase in dollar amounts.					
SOURCE: FLORIDA STATE UNIVERSITY					

	Table A.3.1-15 (Residents)				
Willingness to Pay for Artificial Reefs in Southeast Florida: All Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $); (5) = (1) * (4)	Sample Size
$0	$10	0.5506	0.4494	$0.00	158
$10	$50	0.2207	0.3299	$3.30	145
$50	$100	0.15	0.0707	$3.54	140
$100	$200	0.1318	0.0182	$1.82	129
$200	$500	**0.1429**	**-0.0111**	**-$2.22**	155
$500	INFINITY	0	**0.1429**	**$71.45**	N/A
Total Use Value (Sum Column 5)				$77.88	
Note:					
Turnbull not well behaved because frequencies of yes do not decline with increase in dollar amounts.					
SOURCE: FLORIDA STATE UNIVERSITY					

Table A.3.1-16 (Residents)					
Willingness to Pay for Natural & Artificial Reefs in Southeast Florida: All Reef Users, 2000 - Turnbull Method ($ Per Party-Day)					
(1)	(2)	(3)	(4)	(5)	(6)
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $); (5) = (1) * (4)	Sample Size
$0	$20	0.4625	0.5375	$0.00	160
$20	$100	0.1497	0.3128	$6.26	147
$100	$200	**0.1545**	**-0.0048**	**-$0.48**	123
$200	$400	0.1069	0.0476	$9.52	131
$400	$1,000	0.0949	0.012	$4.80	158
$1,000	INFINITY	0	0.0949	$94.90	N/A
Total Use Value (Sum Column 5)				$115.00	
Note:					
Turnbull not well behaved because frequencies of yes do not decline with increase in dollar amounts.					
SOURCE: FLORIDA STATE UNIVERSITY					

Table A.3.1-17 (Residents)
Willingness to Pay for New Artificial Reefs in Southeast Florida: All Reef Users, 2000 - Turnbull Method ($ Per Party-Day)
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Lower Bound for Interval	**Upper Bound for Interval**	**Probability of Payment at Upper Bound**	**Change in Density of Distribution**	**Willingness to Pay (Use Value $); (5) = (1) * (4)**	**Sample Size**
0	10	0.5082	0.4918	0	183
10	50	0.2139	0.2943	$2.94	173
50	100	0.1878	0.0261	$1.31	181
100	200	0.1014	0.0864	$8.64	148
200	500	0.0611	0.0403	$8.06	131
500	INFINITY	0	0.0611	$30.55	N/A
	Total Use Value (Sum column 5)	**[A]**	$51.50	
	Mean Number of Days Per Year	**[B]**	11.1	
	Use Value Per Party Per Day	**[C] = [A] / [B]**	$4.64	
SOURCE: FLORIDA STATE UNIVERSITY

					Table A.3.1-18 (Residents)		

Table A.3.1-18 (Residents)

Calculation of Use Values for Natural Reefs Using the Turnbull Method, Natural Reef Users Only - 2000

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Natural Reefs
Palm Beach						
Snorkeling	86,651	126.87	$10,993,412	326,674	$33.65	$366,447,079
Scuba Diving	151,347	126.87	$19,201,394	584,199	$32.87	$640,046,463
Fishing	259,095	126.87	$32,871,383	992,334	$33.13	$1,095,712,755
Total	**497,093**	126.87	**$63,066,189**	**1,903,207**	**$33.14**	**$2,102,206,297**
Broward						
Snorkeling	137,873	126.87	$17,491,948	570,794	$30.64	$583,064,917
Scuba Diving	166,899	126.87	$21,174,476	574,133	$36.88	$705,815,871
Fishing	307,005	126.87	$38,949,724	1,292,491	$30.14	$1,298,324,145
Total	**611,777**	126.87	**$77,616,148**	**2,437,418**	**$31.84**	**$2,587,204,933**
Miami-Dade						
Snorkeling	206,857	126.87	$26,243,948	885,348	$29.64	$874,798,253
Scuba Diving	152,491	126.87	$19,346,533	481,872	$40.15	$644,884,439
Fishing	369,956	126.87	$46,936,318	1,598,210	$29.37	$1,564,543,924
Total	**729,304**	126.87	**$92,526,798**	**2,965,430**	**$31.20**	**$3,084,226,616**
Monroe						
Snorkeling	212,805	126.87	$26,998,570	827,810	$32.61	$899,952,345
Scuba Diving	87,149	126.87	$11,056,594	228,329	$48.42	$368,553,121
Fishing	368,861	126.87	$46,797,395	1,220,931	$38.33	$1,559,913,169
Total	**668,815**	126.87	**$84,852,559**	**2,277,070**	**$37.26**	**$2,828,418,635**
All Counties						
Snorkeling	644,186	126.87	$81,727,878	2,610,626	$31.31	$2,724,262,594
Scuba Diving	557,886	126.87	$70,778,997	1,868,533	$37.88	$2,359,299,894
Fishing	1,304,917	126.87	$165,554,820	5,103,966	$32.44	$5,518,493,993
Total	**2,506,989**	126.87	**$318,061,694**	**9,583,125**	**$33.19**	**$10,602,056,481**

	Table A.3.1-19 (Residents)					
	Calculation of Use Values for Artificial Reefs Using the Turnbull Method, Artificial Reef Users Only - 2000					
County/Activity	**Party-days**	**Use Value Per Party-day**	**Annual Use Value**	**Person-days**	**Use Value Per Person-day**	**Asset Value Artificial Reefs**
Palm Beach						
Snorkeling	76,841	$105.08	$8,074,452	289,691	$27.87	$269,148,409
Scuba Diving	58,857	$105.08	$6,184,694	227,188	$27.22	$206,156,452
Fishing	145,741	$105.08	$15,314,464	558,188	$27.44	$510,482,143
Total	**281,439**	$105.08	**$29,573,610**	**1,075,067**	**$27.51**	**$985,787,004**
Broward						
Snorkeling	38,887	$105.08	$4,086,246	160,992	$25.38	$136,208,199
Scuba Diving	74,985	$105.08	$7,879,424	257,948	$30.55	$262,647,460
Fishing	204,670	$105.08	$21,506,724	861,661	$24.96	$716,890,787
Total	**318,542**	$105.08	**$33,472,393**	**1,280,601**	**$26.14**	**$1,115,746,445**
Miami-Dade						
Snorkeling	80,445	$105.08	$8,453,161	344,305	$24.55	$281,772,020
Scuba Diving	68,510	$105.08	$7,199,031	216,492	$33.25	$239,967,693
Fishing	226,747	$105.08	$23,826,575	979,547	$24.32	$794,219,159
Total	**375,702**	$105.08	**$39,478,766**	**1,540,343**	**$25.63**	**$1,315,958,872**
Monroe						
Snorkeling	70,935	$105.08	$7,453,850	275,937	$27.01	$248,461,660
Scuba Diving	115,523	$105.08	$12,139,157	302,669	$40.11	$404,638,561
Fishing	158,083	$105.08	$16,611,362	523,256	$31.75	$553,712,055
Total	**344,541**	$105.08	**$36,204,368**	**1,101,862**	**$32.86**	**$1,206,812,276**
All Counties						
Snorkeling	267,108	$105.08	$28,067,709	1,070,925	$26.21	$935,590,288
Scuba Diving	317,875	$105.08	$33,402,305	1,004,297	$33.26	$1,113,410,167
Fishing	735,241	$105.08	$77,259,124	2,922,652	$26.43	$2,575,304,143
Total	**1,320,224**	$105.08	**$138,729,138**	**4,997,873**	**$27.76**	**$4,624,304,597**

						Asset Value
County/Activity	**Party-days**	**Use Value Per Party-day**	**Annual Use Value**	**Person-days**	**Use Value Per Person-day**	**Natural & Artificial Reefs**

Table A.3.1-20 (Residents)

Calculation of Use Values for Natural & Artificial Reefs Using the Turnbull Method, All Reef Users - 2000

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Natural & Artificial Reefs
Palm Beach						
Snorkeling	163,492	$115.00	$18,801,580	616,365	$30.50	$626,719,333
Scuba Diving	210,204	$115.00	$24,173,460	811,387	$29.79	$805,782,000
Fishing	404,836	$115.00	$46,556,140	1,550,522	$30.03	$1,551,871,333
Total	**778,532**	$115.00	**$89,531,180**	**2,978,274**	**$30.06**	**$2,984,372,667**
Broward						
Snorkeling	176,760	$115.00	$20,327,400	731,786	$27.78	$677,580,000
Scuba Diving	241,884	$115.00	$27,816,660	832,081	$33.43	$927,222,000
Fishing	511,675	$115.00	$58,842,625	2,154,152	$27.32	$1,961,420,833
Total	**930,319**	$115.00	**$106,986,685**	**3,718,019**	**$28.78**	**$3,566,222,833**
Miami-Dade						
Snorkeling	287,302	$115.00	$33,039,730	1,229,653	$26.87	$1,101,324,333
Scuba Diving	221,001	$115.00	$25,415,115	698,363	$36.39	$847,170,500
Fishing	596,703	$115.00	$68,620,845	2,577,757	$26.62	$2,287,361,500
Total	**1,105,006**	$115.00	**$127,075,690**	**4,505,773**	**$28.20**	**$4,235,856,333**
Monroe						
Snorkeling	283,740	$115.00	$32,630,100	1,103,747	$29.56	$1,087,670,000
Scuba Diving	202,671	$115.00	$23,307,165	530,998	$43.89	$776,905,500
Fishing	526,945	$115.00	$60,598,675	1,744,187	$34.74	$2,019,955,833
Total	**1,013,356**	$115.00	**$116,535,940**	**3,378,932**	**$34.49**	**$3,884,531,333**
All Counties						
Snorkeling	911,294	$115.00	$104,798,810	3,681,551	$28.47	$3,493,293,667
Scuba Diving	875,760	$115.00	$100,712,400	2,872,829	$35.06	$3,357,080,000
Fishing	2,040,159	$115.00	$234,618,285	8,026,618	$29.23	$7,820,609,500
Total	**3,827,213**	$115.00	**$440,129,495**	**14,580,998**	**$30.19**	**$14,670,983,167**

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value New Artificial Reefs
Table A.3.1-21 (Residents)						
Calculation of Use Values for New Artificial Reefs Using the Turnbull Method, Artificial Reef Users Only - 2000						
Palm Beach						
Snorkeling	76,841	$3.98	$305,827	289,691	$1.06	$10,194,239
Scuba Diving	58,857	$3.98	$234,251	227,188	$1.03	$7,808,362
Fishing	145,741	$3.98	$580,049	558,188	$1.04	$19,334,973
Total	**281,439**	**$3.98**	**$1,120,127**	**1,075,067**	**$1.04**	**$37,337,574**
Broward						
Snorkeling	38,887	$3.98	$154,770	160,992	$0.96	$5,159,009
Scuba Diving	74,985	$3.98	$298,440	257,948	$1.16	$9,948,010
Fishing	204,670	$3.98	$814,587	861,661	$0.95	$27,152,887
Total	**318,542**	**$3.98**	**$1,267,797**	**1,280,601**	**$0.99**	**$42,259,905**
Miami-Dade						
Snorkeling	80,445	$3.98	$320,171	344,305	$0.93	$10,672,370
Scuba Diving	68,510	$3.98	$272,670	216,492	$1.26	$9,088,993
Fishing	226,747	$3.98	$902,453	979,547	$0.92	$30,081,769
Total	**375,702**	**$3.98**	**$1,495,294**	**1,540,343**	**$0.97**	**$49,843,132**
Monroe						
Snorkeling	70,935	$3.98	$282,321	275,937	$1.02	$9,410,710
Scuba Diving	115,523	$3.98	$459,782	302,669	$1.52	$15,326,051
Fishing	158,083	$3.98	$629,170	523,256	$1.20	$20,972,345
Total	**344,541**	**$3.98**	**$1,371,273**	**1,101,862**	**$1.24**	**$45,709,106**
All Counties						
Snorkeling	267,108	$3.98	$1,063,090	1,070,925	$0.99	$35,436,328
Scuba Diving	317,875	$3.98	$1,265,143	1,004,297	$1.26	$42,171,417
Fishing	735,241	$3.98	$2,926,259	2,922,652	$1.00	$97,541,973
Total	**1,320,224**	**$3.98**	**$5,254,492**	**4,997,873**	**$1.05**	**$175,149,717**

			Table A.3.1-22 (Residents)			
		Calculation of Use Values for Natural Reefs Using the Turnbull Method, All Reef Users - 2000				
County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Natural Reefs
Palm Beach						
Snorkeling	163,492	$124.97	$20,431,595	616,365	$33.15	$681,053,175
Scuba Diving	210,204	$124.97	$26,269,194	811,387	$32.38	$875,639,796
Fishing	404,836	$124.97	$50,592,355	1,550,522	$32.63	$1,686,411,831
Total	778,532	$124.97	$97,293,144	2,978,274	$32.67	$3,243,104,801
Broward						
Snorkeling	176,760	$124.97	$22,089,697	731,786	$30.19	$736,323,240
Scuba Diving	241,884	$124.97	$30,228,243	832,081	$36.33	$1,007,608,116
Fishing	511,675	$124.97	$63,944,025	2,154,152	$29.68	$2,131,467,492
Total	930,319	$124.97	$116,261,965	3,718,019	$31.27	$3,875,398,848
Miami-Dade						
Snorkeling	287,302	$124.97	$35,904,131	1,229,653	$29.20	$1,196,804,365
Scuba Diving	221,001	$124.97	$27,618,495	698,363	$39.55	$920,616,499
Fishing	596,703	$124.97	$74,569,974	2,577,757	$28.93	$2,485,665,797
Total	1,105,006	$124.97	$138,092,600	4,505,773	$30.65	$4,603,086,661
Monroe						
Snorkeling	283,740	124.97	$35,458,988	1,103,747	$32.13	$1,181,966,260
Scuba Diving	202,671	124.97	$25,327,795	530,998	$47.70	$844,259,829
Fishing	526,945	124.97	$65,852,317	1,744,187	$37.76	$2,195,077,222
Total	1,013,356	124.97	$126,639,099	3,378,932	$37.48	$4,221,303,311
All Counties						
Snorkeling	911,294	124.97	$113,884,411	3,681,551	$30.93	$3,796,147,039
Scuba Diving	875,760	124.97	$109,443,727	2,872,829	$38.10	$3,648,124,240
Fishing	2,040,159	124.97	$254,958,670	8,026,618	$31.76	$8,498,622,341
Total	3,827,213	124.97	$478,286,809	14,580,998	$32.80	$15,942,893,620

Table A.3.1-23 (Residents)

Calculation of Use Values for Artificial Reefs Using the Turnbull Method, All Reef Users - 2000

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Artificial Reefs
Palm Beach						
Snorkeling	163,492	$77.88	$12,732,757	616,365	$20.66	$424,425,232
Scuba Diving	210,204	$77.88	$16,370,688	811,387	$20.18	$545,689,584
Fishing	404,836	$77.88	$31,528,628	1,550,522	$20.33	$1,050,954,256
Total	**778,532**	**$77.88**	**$60,632,072**	**2,978,274**	**$20.36**	**$2,021,069,072**
Broward						
Snorkeling	176,760	$77.88	$13,766,069	731,786	$18.81	$458,868,960
Scuba Diving	241,884	$77.88	$18,837,926	832,081	$22.64	$627,930,864
Fishing	511,675	$77.88	$39,849,249	2,154,152	$18.50	$1,328,308,300
Total	**930,319**	**$77.88**	**$72,453,244**	**3,718,019**	**$19.49**	**$2,415,108,124**
Miami-Dade						
Snorkeling	287,302	$77.88	$22,375,080	1,229,653	$18.20	$745,835,992
Scuba Diving	221,001	$77.88	$17,211,558	698,363	$24.65	$573,718,596
Fishing	596,703	$77.88	$46,471,230	2,577,757	$18.03	$1,549,040,988
Total	**1,105,006**	**$77.88**	**$86,057,867**	**4,505,773**	**$19.10**	**$2,868,595,576**
Monroe						
Snorkeling	283,740	$77.88	$22,097,671	1,103,747	$20.02	$736,589,040
Scuba Diving	202,671	$77.88	$15,784,017	530,998	$29.73	$526,133,916
Fishing	526,945	$77.88	$41,038,477	1,744,187	$23.53	$1,367,949,220
Total	**1,013,356**	**$77.88**	**$78,920,165**	**3,378,932**	**$23.36**	**$2,630,672,176**
All Counties						
Snorkeling	911,294	$77.88	$70,971,577	3,681,551	$19.28	$2,365,719,224
Scuba Diving	875,760	$77.88	$68,204,189	2,872,829	$23.74	$2,273,472,960
Fishing	2,040,159	$77.88	$158,887,583	8,026,618	$19.80	$5,296,252,764
Total	**3,827,213**	**$77.88**	**$298,063,348**	**14,580,998**	**$20.44**	**$9,935,444,948**

Table A.3.1-24 (Residents)

Calculation of Use Values for Natural & Artificial Reefs Using the Turnbull Method, All Reef Users - 2000

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value Natural & Artificial Reefs
Palm Beach						
Snorkeling	163,492	$115.00	$18,801,580	616,365	$30.50	$626,719,333
Scuba Diving	210,204	$115.00	$24,173,460	811,387	$29.79	$805,782,000
Fishing	404,836	$115.00	$46,556,140	1,550,522	$30.03	$1,551,871,333
Total	**778,532**	$115.00	**$89,531,180**	**2,978,274**	**$30.06**	**$2,984,372,667**
Broward						
Snorkeling	176,760	$115.00	$20,327,400	731,786	$27.78	$677,580,000
Scuba Diving	241,884	$115.00	$27,816,660	832,081	$33.43	$927,222,000
Fishing	511,675	$115.00	$58,842,625	2,154,152	$27.32	$1,961,420,833
Total	**930,319**	$115.00	**$106,986,685**	**3,718,019**	**$28.78**	**$3,566,222,833**
Miami-Dade						
Snorkeling	287,302	$115.00	$33,039,730	1,229,653	$26.87	$1,101,324,333
Scuba Diving	221,001	$115.00	$25,415,115	698,363	$36.39	$847,170,500
Fishing	596,703	$115.00	$68,620,845	2,577,757	$26.62	$2,287,361,500
Total	**1,105,006**	$115.00	**$127,075,690**	**4,505,773**	**$28.20**	**$4,235,856,333**
Monroe						
Snorkeling	283,740	$115.00	$32,630,100	1,103,747	$29.56	$1,087,670,000
Scuba Diving	202,671	$115.00	$23,307,165	530,998	$43.89	$776,905,500
Fishing	526,945	$115.00	$60,598,675	1,744,187	$34.74	$2,019,955,833
Total	**1,013,356**	$115.00	**$116,535,940**	**3,378,932**	**$34.49**	**$3,884,531,333**
All Counties						
Snorkeling	911,294	$115.00	$104,798,810	3,681,551	$28.47	$3,493,293,667
Scuba Diving	875,760	$115.00	$100,712,400	2,872,829	$35.06	$3,357,080,000
Fishing	2,040,159	$115.00	$234,618,285	8,026,618	$29.23	$7,820,609,500
Total	**3,827,213**	$115.00	**$440,129,495**	**14,580,998**	**$30.19**	**$14,670,983,167**

Table A.3.1-25 (Residents)

Calculation of Use Values for New Artificial Reefs Using the Turnbull Method, All Reef Users - 2000

County/Activity	Party-days	Use Value Per Party-day	Annual Use Value	Person-days	Use Value Per Person-day	Asset Value New Artificial Reefs
Palm Beach						
Snorkeling	163,492	$4.64	$758,603	616,365	$1.23	$25,286,763
Scuba Diving	210,204	$4.64	$975,347	811,387	$1.20	$32,511,552
Fishing	404,836	$4.64	$1,878,439	1,550,522	$1.21	$62,614,635
Total	**778,532**	**$4.64**	**$3,612,388**	**2,978,274**	**$1.21**	**$120,412,949**
Broward						
Snorkeling	176,760	$4.64	$820,166	731,786	$1.12	$27,338,880
Scuba Diving	241,884	$4.64	$1,122,342	832,081	$1.35	$37,411,392
Fishing	511,675	$4.64	$2,374,172	2,154,152	$1.10	$79,139,067
Total	**930,319**	**$4.64**	**$4,316,680**	**3,718,019**	**$1.16**	**$143,889,339**
Miami-Dade						
Snorkeling	287,302	$4.64	$1,333,081	1,229,653	$1.08	$44,436,043
Scuba Diving	221,001	$4.64	$1,025,445	698,363	$1.47	$34,181,488
Fishing	596,703	$4.64	$2,768,702	2,577,757	$1.07	$92,290,064
Total	**1,105,006**	**$4.64**	**$5,127,228**	**4,505,773**	**$1.14**	**$170,907,595**
Monroe						
Snorkeling	283,740	$4.64	$1,316,554	1,103,747	$1.19	$43,885,120
Scuba Diving	202,671	$4.64	$940,393	530,998	$1.77	$31,346,448
Fishing	526,945	$4.64	$2,445,025	1,744,187	$1.40	$81,500,827
Total	**1,013,356**	**$4.64**	**$4,701,972**	**3,378,932**	**$1.39**	**$156,732,395**
All Counties						
Snorkeling	911,294	$4.64	$4,228,404	3,681,551	$1.15	$140,946,805
Scuba Diving	875,760	$4.64	$4,063,526	2,872,829	$1.41	$135,450,880
Fishing	2,040,159	$4.64	$9,466,338	8,026,618	$1.18	$315,544,592
Total	**3,827,213**	**$4.64**	**$17,758,268**	**14,580,998**	**$1.22**	**$591,942,277**

Table A.3.1.26 (Residents)	
Reasons for Saying "NO" to Reef Valuation Questions	
Reef Type/Reason for Saying "NO" to Randomly Assigned Dollar Amount	**Percent**
Natural Reefs	
A. A contribution of that amount is more than natural reefs are worth to me.	4.3
B. I really don't know how much a natural reefs are worth to me.	3.7
C. There are no problems with water quality or the natural reefs.	2.1
D. Not enough information to form a decision.	16.8
E. I don't understand of like the question.	4.5
F. I already pay too much to the government.	14.7
G. Government waste should be reduced to pay for water quality protection and management of the natural reefs.	27.1
H. Other Reason	26.9
Artificial Reefs	
A. A contribution of that amount is more than artificial reefs are worth to me.	12.0
B. I don't really know how much artificial reefs are worth to me.	6.8
C. There are no problems with water quality or the artificial reefs.	1.7
D. Not enough information to form a decision.	15.0
E. I don't understand of like the question.	3.0
F. I already pay too much to the government.	11.8
G. Government waste should be reduced to pay for water quality protection and management of the artificial reefs.	23.5
H. Other Reason	26.2
Natural & Artificial Reefs	
A. A contribution of that amount is more than the reefs are worth to me.	8.8
B. I don't really know how much the reefs are worth to me.	3.7
C. There are no problems with water quality or the reefs.	1.0
D. Not enough information to form a decision.	14.3
E. I don't understand of like the question.	4.0
F. I already pay too much to the government.	15.1
G. Government waste should be reduced to pay for water quality protection and management of reefs.	24.8
H. Other Reason	28.4
New Artificial Reefs	
A. A contribution of that amount is more than a new artificial reef is worth to me.	14.1
B. I don't really know how much an artificial reef is worth to me.	5.5
C. There are enough artificial reefs already.	2.1
D. Not enough information to form a decision.	8.5
E. I don't understand of like the question.	1.5
F The government should fund the artificial reef program out of general revenue and not a specific tax or fee.	20.8
G. I already pay too much to the government.	11.1
H. Government waste should be reduced to fund the artificial reef program.	17.8
I. Other reason.	18.7

Table A.3.1-27 (Residents)		
Relationship Between Protestors/Scenario Rejection and Dollar Amounts		
Reef Type/Dollar Amount	Percent "NO"	Sample Size
Natural Reefs		
$10	24.40	168
$50	46.20	158
$100	52.03	148
$200	52.45	143
$500	49.39	164
Artificial Reefs		
$10	28.31	166
$50	46.15	156
$100	50.00	150
$200	51.75	143
$500	50.00	164
Natural & Artificial Reefs		
$20	32.74	168
$100	50.00	164
$200	51.15	131
$400	55.24	143
$1,000	50.30	165
New Artificial Reefs		
$10	37.37	190
$50	47.22	180
$100	51.10	182
$200	61.69	154
$500	59.29	140

Table A.3.2-2 (Visitors)				
Logit Model for Natural Reef Valuation				
Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	1.671546	4.352	0.0000	1.000000
LQ34a	-0.886884	-22.055	0.0000	4.739014
WHITE	0.795697	3.111	0.0019	0.956431
INC50k	0.725614	3.325	0.0009	0.219522
INC100k	0.835698	3.949	0.0001	0.324675
INC150k	1.015397	4.583	0.0000	0.208630
INCMISS	0.295581	1.304	0.1923	0.177210
BROWARD	0.978211	4.688	0.0000	0.111437
PALMB	0.594799	3.034	0.0024	0.211144
MONROE	1.264684	7.633	0.0000	0.543779
SNORKPR	0.536275	3.853	0.0001	0.170088
SCUBAC	0.256741	1.836	0.0664	0.232509
SUMMER	-0.406214	-3.817	0.0001	0.432761
NREEF	0.330605	2.169	0.0301	0.872643

Notes:

Dependent Variable is WTPNR Mean=.5149

N=2387

Log likelihood function - 1239.238

Restricted log likelihood - 1653.486

Chi-squared 828.4958

Degrees of freedom 13

Significance level .00000

Percent correct predictions 73.94

Table A.3.2-3 (Visitors)				
Logit Model for Artificial Reef Valuation				
Independent Variable	**Coefficient (b)**	**b/standard error (t-value)**	**Probability (t-value)**	**Mean of Independent Variable**
Constant	1.271774	3.370	0.0008	1.000000
LQ36a	-0.809115	-20.988	0.0000	4.741342
OWNBOAT	-0.200918	-1.757	0.0789	0.334345
MALE	0.235360	2.059	0.0395	0.737207
WHITE	0.811411	3.095	0.0020	0.954467
INC50k	0.508736	2.286	0.0223	0.219428
INC100k	0.736976	3.424	0.0006	0.323938
INC150k	0.772915	3.423	0.0006	0.204683
INCMISS	0.059831	0.259	0.7956	0.182134
BROWARD	1.031595	4.878	0.0000	0.111448
PALMB	0.474533	2.372	0.0177	0.199913
MONROE	1.047387	6.089	0.0000	0.553339
SNORKPR	0.453183	3.147	0.0016	0.175629
SCUBAC	0.219997	1.574	0.1154	0.228101
FSHBOTPR	0.401029	2.104	0.0354	0.078925
SUMMER	-0.389201	-3.586	0.0003	0.440156
AREEF	0.182874	1.581	0.1139	0.405898

Notes:

Dependent Variable is WTPAR Mean=.4555

N=2306

Log likelihood function -1228.137

Restricted log likelihood -1582.08

Chi-squared 707.8878

Degrees of freedom 16

Significance level .000000

Percent correct predictions 72.59

Table A.3.2-4 (Visitors)				
Logit Model for Natural & Artificial Reef Combined Valuation				
Independent Variable	**Coefficient (b)**	**b/standard error (t-value)**	**Probability (t-value)**	**Mean of Independent Variable**
Constant	1.927517	4.739	0.0000	1.000000
LQ38a	-0.866794	-21.422	0.0000	5.437317
OWNBOAT	-0.246832	-2.070	0.0385	0.333767
WHITE	0.649675	2.342	0.0192	0.955353
INC50k	0.789407	3.255	0.0011	0.218899
INC100k	1.035656	4.404	0.0000	0.324664
INC150k	1.151358	4.699	0.0000	0.206329
INCMISS	0.209708	0.831	0.4061	0.181188
BROWARD	0.764753	3.450	0.0006	0.110533
PALMB	0.069818	0.329	0.7425	0.205028
MONROE	1.122830	6.185	0.0000	0.551799
SNORKPR	0.367008	2.473	0.0134	0.175119
SCUBAC	0.268370	1.816	0.0694	0.231036
FSHBOTPR	0.382516	1.939	0.0524	0.078023
SUMMER	-0.359219	-3.191	0.0014	0.434330
NREEF	0.184181	1.476	0.1401	0.345904

Notes:

Dependent Variable is WTPNAR Mean=.3801

N=2307

Log likelihood function -1149.282

Restricted log likelihood -1532.162

Chi-squared 765.7608

Degrees of freedom 15

Significance level .00000

Percent correct predictions 75.90

	Table A.3.2-5 (Visitors)			
	Logit Model for New Artificial Reefs Valuation			
Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	2.032626	9.384	0.0000	1.000000
LQ40a	-0.781056	-15.846	0.0000	3.052129
INC50k	0.360464	1.929	0.0538	0.218923
INC100k	0.576840	3.188	0.0014	0.320665
INC150k	0.651699	3.402	0.0007	0.206255
INCMISS	-0.225349	-1.174	0.2405	0.180523
BROWARD	0.545200	2.967	0.0030	0.118765
PALMB	0.464738	2.693	0.0071	0.207047
MONROE	0.344255	2.515	0.0119	0.537213
SCUBAC	0.877731	6.482	0.0000	0.227237
SUMMER	-0.303493	-3.180	0.0015	0.427949

Notes:

Dependent Variable is WTPARNP Mean=.6397

N=2526

Log likelihood function -1438.168

Restricted log likelihood -1650.902

Chi-squared 425.4676

Degrees of freedom 10

Significance level .00000

Percent correct predictions 70.66

Table A.3.2-6 (Visitors)
Logit Model for Natural Reefs -Test for Significant Variables

Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
LQ34A	-0.860526	-20.253	0.0000	4.731232
OWNBOAT	-0.222303	-1.795	0.0727	0.350725
MALE	0.069467	0.567	0.5708	0.740580
WHITE	0.913638	3.193	0.0014	0.957971
HISPANIC	-0.197337	-1.065	0.2869	0.111111
INC100K	0.274009	1.999	0.0456	0.330435
INC150K	0.349447	2.211	0.0270	0.207246
INCMISS	-0.203809	-1.242	0.2141	0.174879
LAGEH	0.231927	1.411	0.1583	1.383612
LEXPER	-0.023777	-1.934	0.0531	-0.324445
BROWARD	0.915381	3.828	0.0001	0.118841
PALMB	0.536668	2.279	0.0226	0.206280
MONROE	1.247620	5.890	0.0000	0.563768
SNORKC	0.104613	0.690	0.4902	0.240580
SNORKPR	0.691527	4.098	0.0000	0.180193
SCUBAC	0.449556	2.662	0.0078	0.239130
SCUBAPR	0.023111	0.115	0.9086	0.086957
FSHBOTC	0.042550	0.077	0.9388	0.010145
FSHBOTPR	0.252238	1.206	0.2279	0.085024
FSHOTH	0.059065	0.464	0.6429	0.428019
GLASSBOT	0.131429	0.572	0.5673	0.064734
VIEW	0.044704	0.228	0.8197	0.095652
SUMMER	-0.338992	-2.861	0.0042	0.450725
NREEF	0.306882	1.808	0.0706	0.872947
CLUB	0.045044	0.277	0.7819	0.134300

Notes:

Dependent Variable is WTPNR Mean=.5227

N=2070

Log likelihood function -1081.283

Restricted log likelihood -1432.680

Chi-squared 702.7941

Degrees of freedom 25

Significance level .00000

Percent correct predictions 73.96

Table A.3.2-7 (Visitors)
Logit Model for Artificial Reefs -Test for Significant Variables

Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	0.946100	2.149	0.0317	
LQ36A	-0.789935	-19.658	0.0000	4.73081
OWNBOAT	-0.284935	-2.331	0.0197	0.35099
MALE	0.275251	2.275	0.0229	0.74049
WHITE	1.117582	3.697	0.0002	0.95763
HISPANIC	-0.188494	-1.032	0.3019	0.11170
INC100K	0.338845	2.524	0.0116	0.32980
INC150K	0.253735	1.637	0.1016	0.20703
INCMISS	-0.330990	-2.020	0.0434	0.17525
LAGEH	0.210955	1.294	0.1958	1.38393
LEXPER	-0.021541	-1.787	0.0739	-0.32505
BROWARD	1.039286	4.396	0.0000	0.11940
PALMB	0.419343	1.802	0.0715	0.20558
MONROE	0.972043	4.660	0.0000	0.56428
SNORKC	-0.001775	-0.012	0.9901	0.24121
SNORKPR	0.485746	2.973	0.0029	0.18151
SCUBAC	0.412537	2.561	0.0104	0.23832
SCUBAPR	0.307243	1.576	0.1151	0.08763
FSHBOTC	0.027228	0.050	0.9598	0.01011
FSHBOTPR	0.445249	2.200	0.0278	0.08522
FSHOTH	0.175591	1.408	0.1592	0.42898
GLASSBOT	0.296422	1.345	0.1785	0.06596
VIEW	-0.051975	-0.274	0.7838	0.09581
SUMMER	-0.331230	-2.840	0.0045	0.45354
AREEF	0.000885	2.270	0.0232	0.42703
CLUB	0.122466	0.773	0.4396	0.13385

Notes:

Dependent Variable is WTPAR Mean=.4458

N=2077

Log likelihood function -1112.970

Restricted log likelihood -1427.456

Chi-squared 628.9712

Degrees of freedom 25

Significance level .00000

Percent correct predictions 72.32

Table A.3.2-8 (Visitors)
Logit Model for Natural & Artificial Reefs Combined: Test for Significant Variables

Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	1.558707	3.292	0.0010	
LQ38A	-0.843096	-19.755	0.0000	5.43416
OWNBOAT	-0.323589	-2.492	0.0127	0.35355
MALE	0.137996	1.088	0.2766	0.73964
WHITE	0.908657	2.867	0.0041	0.95710
HISPANIC	-0.518899	-2.617	0.0089	0.11193
INC100K	0.347767	2.451	0.0143	0.33037
INC150K	0.355789	2.172	0.0299	0.20513
INCMISS	-0.396033	-2.252	0.0243	0.17801
LAGEH	0.302943	1.761	0.0782	1.38490
LEXPER	-0.030706	-2.399	0.0164	-0.32270
BROWARD	0.749685	2.997	0.0027	0.11736
PALMB	-0.033308	-0.133	0.8944	0.20217
MONROE	1.122602	4.921	0.0000	0.56903
SNORKC	0.058546	0.392	0.6950	0.24112
SNORKPR	0.367953	2.162	0.0306	0.18393
SCUBAC	0.406732	2.325	0.0201	0.23817
SCUBAPR	0.341995	1.682	0.0925	0.08876
FSHBOTC	-0.474856	-0.848	0.3965	0.01036
FSHBOTPR	0.449447	2.126	0.0335	0.08580
FSHOTH	0.106004	0.805	0.4207	0.42751
GLASSBOT	0.226328	0.999	0.3178	0.06706
VIEW	-0.018595	-0.095	0.9247	0.09665
SUMMER	-0.313960	-2.525	0.0116	0.44970
NAREEF	0.264706	1.949	0.0513	0.36144
CLUB	0.222027	1.335	0.1818	0.13314

Notes:

Dependent Variable is WTPNAR Mean=.3826

N=2028

Log likelihood function -1013.577

Restricted log likelihood -1349.316

Chi-squared 671.4775

Degrees of freedom 25

Significance level .00000

Percent correct predictions 76.53

	Table A.3.2-9 (Visitors)			
Logit Model for New Artificial Reefs - Test for Significant Variables				
Independent Variable	**Coefficient (b)**	**b/standard error (t-value)**	**Probability (t-value)**	**Mean of Independent Variable**
Constant	2.832109	6.881	0.0000	
LQ40A	-0.776148	-13.953	0.0000	3.055226
OWNBOAT	-0.201302	-1.691	0.0908	0.354791
MALE	-0.106210	-0.892	0.3725	0.741523
WHITE	0.275118	1.130	0.2585	0.955774
HISPANIC	-0.075905	-0.442	0.6586	0.111548
INC100K	0.368615	2.772	0.0056	0.329238
INC150K	0.362053	2.360	0.0183	0.206388
INCMISS	-0.452144	-2.968	0.0030	0.177887
LAGEH	-0.069782	-0.443	0.6579	1.384113
LEXPER	0.001324	0.111	0.9114	-0.287944
BROWARD	0.475909	2.133	0.0329	0.120393
PALMB	0.233690	1.076	0.2818	0.204423
MONROE	0.145232	0.752	0.4521	0.562654
SNORKC	-0.170943	-1.187	0.2351	0.237838
SNORKPR	0.037167	0.235	0.8142	0.181327
SCUBAC	0.888880	5.254	0.0000	0.239803
SCUBAPR	0.316435	1.625	0.1042	0.088452
FSHBOTC	0.509762	0.940	0.3472	0.009828
FSHBOTPR	0.390997	1.961	0.0499	0.085012
FSHOTH	-0.176328	-1.440	0.1498	0.427518
GLASSBOT	0.145700	0.669	0.5036	0.067322
VIEW	-0.103682	-0.556	0.5780	0.096806
SUMMER	-0.366460	-3.177	0.0015	0.446683
AREEF	-0.181252	-1.478	0.1395	0.427027
CLUB	0.166381	0.999	0.3176	0.134644

Notes:

Dependent Variable is WTPARNP Mean=.6437

N=2035

Log likelihood function -1144.617

Restricted log likelihood -1325.272

Chi-squared 361.3098

Degrees of freedom 25

Significance level .00000

Percent correct predictions 71.60

	Table A.3.2-10 (Visitors)			
	Probit Model for Natural Reef Valuation			
Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	-0.862772	-4.336	0.0000	1.00000
Q34a	-0.002017	-20.545	0.0000	281.01382
WHITE	0.421067	2.965	0.0030	0.95643
INC50k	0.386044	3.141	0.0017	0.21952
INC100k	0.469663	3.944	0.0001	0.32468
INC150k	0.582044	4.663	0.0000	0.20863
INCMISS	0.187725	1.474	0.1405	0.17721
BROWARD	0.465227	3.984	0.0001	0.11144
PALMB	0.258635	2.380	0.0173	0.21114
MONROE	0.613517	6.737	0.0000	0.54378
SNORKPR	0.326229	4.114	0.0000	0.17009
SCUBAC	0.136909	1.732	0.0833	0.23251
SUMMER	-0.190764	-3.155	0.0016	0.43276
NREEF	0.224160	2.581	0.0098	0.87264

Dependent Variable is WTPNR Mean=.5149

N=2387

Log likelihood function -1332.957

Restricted log likelihood -1653.486

Chi-squared 641.0575

Degrees of freedom 13

Significance level .00000

Percent correct predictions 72.64

Table A.3.2-11 (Visitors)				
Probit Model for Artificial Reef Valuation				
Independent Variable	**Coefficient (b)**	**b/standard error (t-value)**	**Probability (t-value)**	**Mean of Independent Variable**
Constant	-0.865959	-4.340	0.0000	1.000000
Q36a	-0.002063	-18.849	0.0000	281.053770
OWNBOAT	-0.105393	-1.600	0.1095	0.334345
MALE	0.135079	2.056	0.0398	0.737207
WHITE	0.430445	2.915	0.0036	0.954467
INC50k	0.265000	2.085	0.0371	0.219428
INC100k	0.425318	3.460	0.0005	0.323938
INC150k	0.454674	3.523	0.0004	0.204683
INCMISS	0.049181	0.374	0.7081	0.182134
BROWARD	0.517563	4.292	0.0000	0.111448
PALMB	0.201786	1.778	0.0755	0.199913
MONROE	0.519536	5.368	0.0000	0.553339
SNORKPR	0.293807	3.530	0.0004	0.175629
SCUBAC	0.128982	1.595	0.1107	0.228101
FSHBOTPR	0.202591	1.829	0.0674	0.078925
SUMMER	-0.193447	-3.095	0.0020	0.440156
AREEF	0.103841	1.556	0.1197	0.405898

Notes:

Dependent Variable is WTPAR Mean=.4406

N=2306

Log likelihood function -1298.049

Restricted log likelihood -1582.080

Chi-squared 568.0624

Degrees of freedom 16

Significance level .00000

Percent correct predictions 70.42

Table A.3.2-12 (Visitors)				
Probit Model for Natural & Artificial Reefs Combined Valuation				
Independent Variable	Coefficient (b)	b/standard error (t-value)	Probability (t-value)	Mean of Independent Variable
Constant	-0.982005	-4.779	0.0000	1.000000
Q38a	-0.001047	-17.960	0.0000	564.672740
OWNBOAT	-0.116586	-1.747	0.0806	0.333767
WHITE	0.355358	2.306	0.0211	0.955353
INC50k	0.429889	3.194	0.0014	0.218899
INC100k	0.598599	4.596	0.0000	0.324664
INC150k	0.678229	4.992	0.0000	0.206329
INCMISS	0.162640	1.167	0.2433	0.181188
BROWARD	0.334809	2.710	0.0067	0.110533
PALMB	-0.023155	-0.197	0.8435	0.205028
MONROE	0.536744	5.388	0.0000	0.551799
SNORKPR	0.237128	2.823	0.0048	0.175119
SCUBAC	0.143570	1.728	0.0841	0.231036
FSHBOTPR	0.157816	1.401	0.1613	0.078023
SUMMER	-0.165743	-2.620	0.0088	0.434330
NREEF	0.124126	1.769	0.0769	0.345904

Notes:

Dependent Variable is WTPNAR Mean=.3801

N=2307

Log likelihood function -1254.553

Restricted log likelihood -1532.162

Chi-squared 555.2192

Degrees of freedom 15

Significance level .00000

Percent correct predictions 73.04

Table A.3.2-13 (Visitors)				
Probit Model for New Artificial Reef Valuation				
Independent Variable	**Coefficient (b)**	**b/standard error (t-value)**	**Probability (t-value)**	**Mean of Independent Variable**
Constant	0.389036	3.210	0.0013	1.000000
Q40a	-0.013163	-15.237	0.0000	33.357086
INC50k	0.203680	1.809	0.0705	0.218923
INC100k	0.342205	3.149	0.0016	0.320665
INC150k	0.393663	3.431	0.0006	0.206255
INCMISS	-0.117898	-1.017	0.3091	0.180523
BROWARD	0.321182	2.927	0.0034	0.118765
PALMB	0.255921	2.505	0.0122	0.207047
MONROE	0.185167	2.253	0.0242	0.537213
SCUBAC	0.505319	6.487	0.0000	0.227237
SUMMER	-0.170146	-2.998	0.0027	0.427949

Notes:

Dependent Variable is WTPARNP Mean=.6397

N=2526

Log likelihood function -1460.790

Restricted log likelihood -1650.902

Chi-squared 380.2247

Degrees of freedom 10

Significance level .00000

Percent correct predictions 70.74

County/Activity-Boat Mode	Summer			Winter		
	Mean	Standard Error	Sample Size	Mean	Standard Error	Sample Size
Miami-Dade (All Users)	**$34.70**	1.13	193	**$55.26**	2.34	93
Snorkelers - Private/Rental Boats	$55.76	3.81	28	$13.10	7.86	4
Scuba Divers - Charter/Party Boats	$41.60	4.31	11	$60.26	6.06	17
All Others	$30.38	0.89	154	$50.87	2.02	72
Palm Beach (All Users)	$92.14	2.99	146	$133.20	2.77	290
Snorkelers - Private/Rental Boats	$154.41	9.30	18	$287.67	0.00	5
Scuba Divers - Charter/Party Boats	**$95.71**	3.43	94	**$144.37**	3.38	202
All Others	**$65.94**	3.67	38	**$107.56**	3.60	88
Broward (All Users)	$115.67	3.81	146	$198.96	8.27	101
Snorkelers - Private/Rental Boats	$191.93	16.84	13	$417.71	51.42	6
Scuba Divers - Charter/Party Boats	**$142.74**	9.22	39	**$239.47**	13.19	52
All Others	**$100.68**	3.02	100	**$158.20**	6.77	54
Monroe (All Users)	$179.42	3.85	446	$274.82	4.19	687
Snorkelers - Private/Rental Boats	**$248.48**	5.94	166	**$423.03**	11.46	122
Scuba Divers - Charter/Party Boats	**$211.12**	12.38	37	**$315.84**	11.21	92
All Others	**$129.88**	2.80	245	**$231.96**	3.04	477

Table A.3.2-14

Estimated Mean Values Using Logit Equations: Visitors to Natural Reefs, 2000-2001

Notes.

NREEF=1 Used Natural Reefs

Numbers in bold were used for estimating values of reef.

All Others values were used for Activity-Boat Modes with sample sizes less than 30, except Miami-Dade where the All Users values were used for all Activity-Boat Modes.

County/Activity-Boat Mode	Summer			Winter		
	Mean	Standard Error	Sample Size	Mean	Standard Error	Sample Size
Miami-Dade (All Users)	**$23.63**	0.82	217	**$31.82**	1.53	100
Snorkelers - Private/Rental Boats	$34.77	3.03	29	$56.83	7.92	4
Bottom fishing from Private/Rental Boats	$49.37	5.09	10			0
All Others	$21.48	0.72	184	$30.78	1.47	96
Palm Beach (All Users)	**$50.90**	1.80	180	**$78.74**	2.06	286
Snorkelers - Private/Rental Boats	$80.78	7.96	20	$144.88	14.74	6
Bottom fishing from Private/Rental Boats	$104.40	20.57	6	$98.62	45.95	4
All Others	$46.84	1.52	157	$77.02	1.94	276
Broward (All Users)	**$99.98**	4.29	143	**$164.49**	6.99	120
Snorkelers - Private/Rental Boats	$154.66	19.08	15	$331.45	36.94	6
Bottom Fishing from Private/Rental Boats	$227.20	0.03	4	$200.22	47.61	5
All Others	$91.40	3.58	125	$153.66	6.01	109
Monroe (All Users)	$96.41	2.55	483	$146.16	2.59	802
Snorkelers - Private/Rental Boats	**$133.61**	4.66	184	**$229.17**	8.25	143
Bottom Fishing from Private/Rental Boats	**$165.43**	8.72	69	**$241.00**	12.14	85
All Others	**$70.88**	2.00	279	**$124.21**	1.93	611

Table A.3.2-15

Estimated Mean Values Using Logit Equations: Visitors to Artificial Reefs, 2000-2001

Notes.

AREEF=1 Artificial Reef Users was not significant in logit model.

Numbers in bold were used for estimating values of reef.

Dollar amounts are Per Party Per Trip.

Table A.3.2-16						
Estimated Mean Values Using Logit Equations: Visitors to Natural & Artificial Reefs, 2000-2001						
County/Activity-Boat Mode	**Summer**			**Winter**		
	Mean	**Standard Error**	**Sample Size**	**Mean**	**Standard Error**	**Sample Size**
Miami-Dade (All Users)	**$37.05**	1.23	216	**$50.12**	2.50	98
Snorkelers - Private/Rental Boats	$47.23	3.98	29	$77.28	10.16	4
Scuba Divers - Charter/Party Boats	$46.16	7.08	11	$62.45	8.80	16
Bottom Fishing - Private/Rental Boats	$66.74	8.04	10			0
All Others	$34.21	1.19	172	$46.19	2.34	78
Palm Beach (All Users)	$49.13	1.75	181	$75.44	2.01	300
Snorkelers - Private/Rental Boats	$69.82	6.47	20	$130.19	16.00	7
Scuba Divers - Charter/Party Boats	**$59.72**	2.46	91	**$84.32**	2.50	200
Bottom Fishing - Private/Rental Boats	$90.48	16.21	6	$88.86	39.51	4
All Others	**$33.57**	1.68	72	**$57.68**	2.55	96
Broward (All Users)	$109.15	4.39	142	$175.45	6.88	120
Snorkelers - Private/Rental Boats	$147.85	18.26	15	$295.24	37.19	6
Scuba Divers - Charter/Party Boats	**$140.62**	11.32	36	**$215.68**	10.25	54
Bottom Fishing - Private/Rental Boats	$227.27	59.44	4	$183.78	43.08	5
All Others	**$95.45**	3.88	96	**$137.78**	6.77	60
Monroe (All Users)	$146.49	3.59	483	$221.81	3.62	805
Snorkelers - Private/Rental Boats	**$185.52**	6.58	184	**$307.88**	11.17	143
Scuba Divers - Charter/Party Boats	**$204.24**	12.88	37	**$271.79**	10.71	94
Bottom Fishing - Private/Rental Boats	**$224.63**	12.24	69	**$329.17**	16.19	84
All Others	**$109.36**	3.12	244	**$187.33**	3.04	525
Notes.						
Dollar amounts are Per Party Per Trip.						

County/Activity-Boat Mode	Summer			Winter		
	Mean	**Standard Error**	**Sample Size**	**Mean**	**Standard Error**	**Sample Size**
Miami-Dade (All Users)	**$9.79**	0.56	218	**$29.27**	2.17	89
Scuba Divers - Charter/Party Boats	$24.50	4.68	11	$43.63	9.05	16
All Others	$9.01	0.49	207	$26.13	1.59	73
Palm Beach (All Users)	$26.75	2.17	186	$66.36	3.91	280
Scuba Divers - Charter/Party Boats	**$34.56**	3.74	94	**$78.44**	5.14	199
All Others	**$18.78**	1.85	92	**$36.68**	2.86	81
Broward (All Users)	$26.07	1.70	146	$51.66	4.48	109
Scuba Divers - Charter/Party Boats	**$25.85**	5.14	37	**$65.68**	8.16	53
All Others	**$26.14**	1.49	109	**$38.40**	3.24	56
Monroe (All Users)	$27.93	1.13	474	$54.46	1.49	722
Scuba Divers - Charter/Party Boats	**$83.96**	6.51	37	**$119.45**	6.98	94
All Others	**$23.18**	0.74	437	**$44.73**	0.84	628

Notes.

Dollar amounts are Per Party Per Trip.

Original question yielded dollar amounts of per party per year. The logit model was used to estimate the willingness to pay per party per year for each sampled individual. This amount was then divided by the number of trips that the reefs in South Florida were used over the past 12 month (number of trips artificial reefs). This yielded an estimate of the willingness to pay per party per trip.

Table title: Estimated Mean Values Using Logit Equations: Visitors, New Artificial Reefs, 2000-2001

	Table A.3.2-18 Average Visitor Party Sizes				
County	**Average Persons Per Party**				
	Fishing On:			**Scuba Diving or Snorkeling On:**	
	Own, Friend's or Rental Boat	**Charter Boat**	**Party Boat**	**Own, Friend's or Rental Boat**	**Charter or Party Boat**
Palm Beach	3.23	2.68	2.26	3.26	1.67
Broward	3.16	2.77	2.00	3.05	2.00
Miami-Dade	3.25	3.21	2.70	3.13	1.75
Monroe	3.99	3.13	2.83	4.28	4.08

	Table A.3.2-19								
	Calculation of Use Values for Natural Reefs - Palm Beach County Visitors - 2000-2001								
Activity-Boat Mode	**Summer Value Per Person-Trip (NREEF=1)**	**Winter Value Per Person-Trip (NREEF=1)**	**Natural Reefs Annual Person-days**	**Summer Person-Trips Natural Reefs**	**Winter Person-Trips Natural Reefs**	**Summer Value Natural Reefs**	**Winter Value Natural Reefs**	**Annual Value Natural Reefs**	**User Value Per Person-Day Natural Reefs**
Snorkeling									
Charter/Party	$39.49	$64.41	27,895	6,279	6,774	$247,941	$436,293	$684,233	$24.53
Rental	$20.23	$32.99	3,970	1,770	1,910	$35,810	$63,014	$98,825	$24.89
Private	$20.23	$32.99	58,679	10,047	10,838	$203,220	$357,599	$560,819	$9.56
Total			90,544	18,097	19,522	$486,971	$856,906	$1,343,878	$14.84
Scuba Diving									
Charter/Party	$57.31	$86.45	607,859	142,053	153,242	$8,141,259	$13,247,661	$21,388,921	$35.19
Rental	$20.23	$32.99	3,614	767	828	$15,524	$27,317	$42,840	$11.85
Private	$20.23	$32.99	70,329	16,954	18,290	$342,934	$603,449	$946,383	$13.46
Total			681,802	159,775	172,360	$8,499,717	$13,878,427	$22,378,144	$32.82
Fishing - Offshore/Trolling									
Charter	$24.60	$40.13	18,221	2,930	3,161	$72,100	$126,872	$198,972	$10.92
Party	$29.18	$47.59	33,861	8,931	9,634	$260,569	$458,515	$719,084	$21.24
Rental	$20.41	$33.30	986	209	226	$4,273	$7,519	$11,792	$11.96
Private	$20.41	$33.30	64,004	11,931	12,871	$243,565	$428,593	$672,159	$10.50
Total			117,072	24,001	25,892	$580,508	$1,021,499	$1,602,007	$13.68
Fishing - Flats or Back Country									
Charter/Party	$24.60	$40.13	0	0	0	$0	$0	$0	
Rental	$20.41	$33.30	0	0	0	$0	$0	$0	
Private	$20.41	$33.30	657	140	151	$2,849	$5,013	$7,862	$11.96
Total			657	140	151	$2,849	$5,013	$7,862	$11.96
Fishing - Bottom									
Charter	$24.60	$40.13	8,351	2,299	2,480	$56,562	$99,530	$156,092	$18.69
Party	$29.18	$47.59	14,881	3,558	3,839	$103,821	$182,689	$286,510	$19.25
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$20.41	$33.30	17,367	2,582	2,785	$52,701	$92,737	$145,438	$8.37
Total			40,599	8,439	9,103	$213,084	$374,956	$588,040	$14.48
Viewing									
Glass Bottom Boat	$0.00	$0.00	0	0	0	$0	$0	$0	
Total			0						
All Activities - Boat Modes			930,675	210,451	227,028	9,783,129	16,136,801	$25,919,931	$27.85
All Fishing			158,329	32,579	35,146	$796,441	$1,401,468	$2,197,909	$13.88

	Table A.3.2-20								
	Calculation of Use Values for Natural Reefs - Broward County Visitors - 2000-2001								
Activity-Boat Mode	Summer Value Per Person-Trip (NREEF=1)	Winter Value Per Person-Trip (NREEF=1)	Natural Reefs Annual Person-days	Summer Person-Trips Natural Reefs	Winter Person-Trips Natural Reefs	Summer Value Natural Reefs	Winter Value Natural Reefs	Annual Value Natural Reefs	User Value Per Person-Day Natural Reefs
Snorkeling									
Charter/Party	$50.34	$79.10	176,267	10,476	17,961	$527,367	$1,420,708	$1,948,076	$11.05
Rental	$33.01	$51.87	0	0	0	$0	$0	$0	
Private	$33.01	$51.87	90,450	5,928	6,395	$195,679	$331,692	$527,371	$5.83
Total			**266,717**	16,404	24,356	$723,046	$1,752,400	**$2,475,446**	**$9.28**
Scuba Diving									
Charter/Party	$71.37	$119.74	1,233,489	141,813	152,984	$10,121,222	$18,317,507	$28,438,730	$23.06
Rental	$33.01	$51.87	88,006	11,856	12,790	$391,357	$663,384	$1,054,741	$11.98
Private	$33.01	$51.87	111,579	20,976	22,628	$692,402	$1,173,679	$1,866,081	$16.72
Total			**1,433,074**	174,645	188,401	$11,204,981	$20,154,570	**$31,359,551**	**$21.88**
Fishing - Offshore/Trolling									
Charter	$36.35	$57.11	52,970	17,100	18,447	$621,515	$1,053,520	$1,675,035	$31.62
Party	$50.34	$79.10	318,347	136,797	147,573	$6,886,386	$11,673,003	$18,559,389	$58.30
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$31.86	$50.06	637,970	64,523	69,605	$2,055,746	$3,484,662	$5,540,408	$8.68
Total			**1,009,287**	218,420	235,624	$9,563,647	$16,211,186	**$25,774,832**	**$25.54**
Fishing - Flats or Back Country									
Charter/Party	$0.00	$0.00	0	0	0	$0	$0	$0	
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$31.86	$50.06	44,298	3,952	4,263	$125,911	$213,430	$339,342	$7.66
Total			**44,298**	3,952	4,263	$125,911	$213,430	**$339,342**	**$7.66**
Fishing - Bottom									
Charter	$36.35	$57.11	1,059	456	492	$16,574	$28,094	$44,668	$42.16
Party	$50.34	$79.10	68,826	11,400	12,298	$573,865	$972,750	$1,546,616	$22.47
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$31.86	$50.06	166,274	19,380	20,906	$617,450	$1,046,630	$1,664,080	$10.01
Total			**236,160**	31,235	33,696	$1,207,889	$2,047,474	**$3,255,364**	**$13.78**
Viewing									
Glass Bottom Boat	$50.34	$79.10	37,675	3,648	3,935	$183,637	$311,280	$494,917	$13.14
Total			**37,675**	3,648	3,935	$183,637	$311,280	**$494,917**	**$13.14**
All Activities - Boat Modes			**3,027,210**	**448,304**	**490,275**	**23,009,112**	**40,690,340**	**$63,699,452**	**$21.04**
All Fishing			**1,289,745**					**$29,369,538**	**$22.77**

Activity-Boat Mode	Summer Value Per Person-Trip (NREEF=1)	Winter Value Per Person-Trip (NREEF=1)	Natural Reefs Annual Person-days	Summer Person-Trips Natural Reefs	Winter Person-Trips Natural Reefs	Summer Value Natural Reefs	Winter Value Natural Reefs	Annual Value Natural Reefs	User Value Per Person-Day Natural Reefs
Table A.3.2-21									
Calculation of Use Values for Natural Reefs - Miami-Dade County Visitors - 2000-2001									
Snorkeling									
Charter/Party	$19.83	$31.58	79,692	45,568	19,007	$903,542	$600,187	$1,503,729	$18.87
Rental	$11.09	$17.65	0	0	0	$0	$0	$0	
Private	$11.09	$17.65	519,667	154,111	64,282	$1,708,515	$1,134,898	$2,843,413	$5.47
Total			599,359	199,679	83,289	$2,612,057	$1,735,085	**$4,347,142**	**$7.25**
Scuba Diving									
Charter/Party	$19.83	$31.58	102,677	43,008	17,939	$852,782	$566,469	$1,419,250	$13.82
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$11.09	$17.65	168,136	67,072	27,977	$743,573	$493,926	$1,237,499	$7.36
Total			270,813	110,079	45,916	$1,596,354	$1,060,394	**$2,656,749**	**$9.81**
Fishing - Offshore/Trolling									
Charter	$10.81	$17.21	114,974	54,272	22,638	$586,675	$389,705	$976,379	$8.49
Party	$12.85	$20.47	200,056	68,608	28,617	$881,734	$585,701	$1,467,435	$7.34
Rental	$10.68	$17.00	208,520	74,035	30,881	$790,463	$525,073	$1,315,536	$6.31
Private	$10.68	$17.00	817,748	296,958	123,866	$3,170,598	$2,106,101	$5,276,699	$6.45
Total			1,341,298	493,872	206,002	$5,429,470	$3,606,579	**$9,036,049**	**$6.74**
Fishing - Flats or Back Country									
Charter/Party	$0.00	$0.00	0	0	0	$0	$0	$0	
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$10.68	$17.00	538,880	190,463	79,445	$2,033,556	$1,350,810	$3,384,366	$6.28
Total			538,880	190,463	79,445	$2,033,556	$1,350,810	**$3,384,366**	**$6.28**
Fishing - Bottom									
Charter	$10.81	$17.21	7,473	4,096	1,708	$44,277	$29,412	$73,689	$9.86
Party	$12.85	$20.47	93,129	41,984	17,512	$539,569	$358,414	$897,982	$9.64
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$10.68	$17.00	382,941	141,823	59,157	$1,514,234	$1,005,845	$2,520,079	$6.58
Total			483,544	187,903	78,377	$2,098,080	$1,393,670	**$3,491,750**	**$7.22**
Viewing									
Glass Bottom Boat	$12.85	$20.47	14,060	4,608	1,922	$59,221	$39,338	$98,559	$7.01
Total			14,060	4,608	1,922	$59,221	$39,338	**$98,559**	**$7.01**
All Activities-Boat Modes			3,247,954	1,186,603	494,951	13,828,739	9,185,876	**$23,014,615**	**$7.09**
All Fishing			2,363,723	872,237	363,824	$9,561,106	$6,351,059	**$15,912,165**	**$6.73**

Table A.3.2-22									
Calculation of Use Values for Natural Reefs - Monroe County Visitors - 2000-2001									
Activity-Boat Mode	Summer Value Per Person-Trip (NREEF=1)	Winter Value Per Person-Trip (NREEF=1)	Natural Reefs Annual Person-days	Summer Person-Trips Natural Reefs	Winter Person-Trips Natural Reefs	Summer Value Natural Reefs	Winter Value Natural Reefs	Annual Value Natural Reefs	User Value Per Person-Day Natural Reefs
Snorkeling									
Charter/Party	$31.83	$56.85	250,701	62,891	51,766	$2,002,027	$2,943,051	$4,945,078	$19.73
Rental	$62.28	$98.84	56,590	13,139	10,815	$818,235	$1,068,917	$1,887,153	$33.35
Private	$62.28	$98.84	333,928	73,776	60,726	$4,594,442	$6,002,037	$10,596,480	$31.73
Total			641,218	149,806	123,306	$7,414,704	$10,014,005	$17,428,710	$27.18
Scuba Diving									
Charter/Party	$51.75	$77.41	99,738	26,938	22,173	$1,393,885	$1,716,413	$3,110,298	$31.18
Rental	$30.35	$54.20	16,702	4,398	3,620	$133,460	$196,191	$329,650	$19.74
Private	$30.35	$54.20	165,896	32,215	26,517	$977,593	$1,437,096	$2,414,688	$14.56
Total			282,336	63,551	52,309	$2,504,938	$3,349,700	$5,854,637	$20.74
Fishing - Offshore/Trolling									
Charter	$41.50	$74.11	41,190	8,026	6,607	$333,052	$489,599	$822,651	$19.97
Party	$45.89	$81.96	48,403	23,969	19,729	$1,100,029	$1,617,082	$2,717,110	$56.13
Rental	$32.55	$58.14	21,317	4,178	3,439	$136,002	$199,928	$335,929	$15.76
Private	$32.55	$58.14	215,028	34,744	28,598	$1,130,963	$1,662,555	$2,793,518	$12.99
Total			325,938	70,917	58,373	$2,700,046	$3,969,163	$6,669,209	$20.46
Fishing - Flats or Back Country									
Charter/Party	$0.00	$0.00	0	0	0	$0	$0	$0	
Rental	$0.00	$0.00	0	0	0	$0	$0	$0	
Private	$32.55	$58.14	95,052	15,503	12,761	$504,638	$741,836	$1,246,475	$13.11
Total			95,052	15,503	12,761	$504,638	$741,836	$1,246,475	$13.11
Fishing - Bottom									
Charter	$41.50	$74.11	9,301	440	362	$18,249	$26,827	$45,077	$4.85
Party	$45.89	$81.96	10,630	1,319	1,086	$60,552	$89,014	$149,566	$14.07
Rental	$32.55	$58.14	7,786	1,649	1,358	$53,685	$78,919	$132,604	$17.03
Private	$32.55	$58.14	154,842	27,817	22,897	$905,486	$1,331,096	$2,236,582	$14.44
Total			182,559	31,226	25,702	$1,037,972	$1,525,856	$2,563,828	$14.04
Viewing									
Glass Bottom Boat	$45.89	$81.96	71,363	17,262	14,209	$792,223	$1,164,595	$1,956,818	$27.42
Total			71,363	17,262	14,209	$792,223	$1,164,595	$1,956,818	$27.42
All Activities - Boat Modes			1,598,467	348,264	286,659	14,954,521	20,765,156	$35,719,677	$22.35
All Fishing			603,549	117,646	96,835	4,242,656	6,236,856	$10,479,512	$17.36

Table A.3.2-23: Calculation of Use Value of Artificial Reefs - Palm Beach County Visitors, 2000-2001								
Activity-Boat Mode	Summer Value Per Person Trip	Winter Value Per Person Trip	Annual Person-Days; Artificial Reefs	Summer Person-Trips; Artificial Reefs	Winter Person-Trips; Artificial Reefs	Summer Value; Artificial Reefs	Winter Value; Artificial Reefs	Annual Value; Artificial Reefs	User Value Per Person-day (Artificial Reefs)
Snorkeling									
Charter/Party	$30.48	$47.15	6,276	1,395	1,505	$42,531	$70,976	$113,507	$18.08
Rental	$15.61	$24.15	5,558	253	273	$3,949	$6,590	$10,539	$1.90
Private	$15.61	$24.15	25,105	5,721	6,172	$89,328	$149,071	$238,399	$9.50
Total			**36,940**	7,370	7,950	$135,808	$226,637	**$362,444**	**$9.81**
Scuba Diving									
Charter/Party	$30.48	$47.15	179,124	50,654	54,643	$1,543,871	$2,576,419	$4,120,290	$23.00
Rental	$15.61	$24.15	1,643	349	376	$5,447	$9,090	$14,537	$8.85
Private	$15.61	$24.15	57,155	16,257	17,537	$253,822	$423,579	$677,401	$11.85
Total			**237,921**	67,259	72,557	$1,803,139	$3,009,088	**$4,812,227**	**$20.23**
Fishing - Offshore/Trolling									
Charter	$18.99	$29.38	5,399	2,721	2,935	$51,680	$86,243	$137,923	$25.55
Party	$22.52	$34.84	10,032	4,326	4,667	$97,426	$162,585	$260,010	$25.92
Rental	$15.76	$24.38	0	0	0	$0	$0	$0	
Private	$15.76	$24.38	32,937	6,140	6,623	$96,754	$161,464	$258,219	$7.84
Total			**48,368**	13,187	14,225	$245,860	$410,292	**$656,152**	**$13.57**
Fishing - Flats or Back Country									
Charter/Party	$18.99	$29.38	0	0	0	$0	$0	$0	
Rental	$15.76	$24.38	0	0	0	$0	$0	$0	
Private	$15.76	$24.38	0	0	0	$0	$0	$0	
Total			**0**	0	0	$0	$0	$0	
Fishing - Bottom									
Charter	$18.99	$29.38	2,474	0	0	$0	$0	$0	$0.00
Party	$22.52	$34.84	4,409	1,256	1,355	$28,285	$47,202	$75,487	$17.12
Rental	$15.76	$24.38	0	0	0	$0	$0	$0	
Private	$15.76	$24.38	0	0	0	$0	$0	$0	
Total			**6,883**	1,256	1,355	$28,285	$47,202	**$75,487**	**$10.97**
Viewing									
Glass Bottom Boat	$22.52	$34.84	0	0	0	$0	$0	$0	
Total			**0**	0	0	$0	$0	$0	
All Activities - Boat Modes			**330,112**	**89,071**	**96,087**	**2,213,092**	**3,693,219**	**$5,906,311**	**$17.89**
All Fishing			**55,252**					**$731,639**	**$13.24**

			Table A.3.2-24: Calculation of Use Value of Artficial Reefs - Broward County Visitors, 2000-2001					
Activity-Boat Mode	Summer Value Per Person Trip	Winter Value Per Person Trip	Annual Person-Days; Artificial Reefs	Summer Person-Trips; Artificial Reefs	Winter Person-Trips; Artificial Reefs	Summer Value; Artificial Reefs	Winter Value; Artificial Reefs	Annual Value; Artificial Reefs	User Value Per Person-day (Artificial Reefs)
Snorkeling									
Charter/Party	$49.99	$82.25	52,880	3,492	5,987	$174,567	$492,398	$666,965	$12.61
Rental	$32.78	$53.93	0	0	0	$0	$0	$0	
Private	$32.78	$53.93	34,789	1,368	1,476	$44,843	$79,588	$124,430	$3.58
Total			**87,669**	4,860	7,463	$219,410	$571,986	**$791,396**	**$9.03**
Scuba Diving									
Charter/Party	$49.99	$82.25	1,370,373	152,301	164,298	$7,613,537	$13,512,660	$21,126,197	$15.42
Rental	$32.78	$53.93	88,006	11,400	12,298	$373,689	$663,231	$1,036,919	$11.78
Private	$32.78	$53.93	128,745	14,364	15,495	$470,848	$835,671	$1,306,519	$10.15
Total			**1,587,123**	178,065	192,091	$8,458,074	$15,011,561	**$23,469,635**	**$14.79**
Fishing - Offshore/Trolling									
Charter	$36.09	$59.38	48,895	17,328	18,693	$625,423	$1,110,013	$1,735,436	$35.49
Party	$49.99	$82.25	293,859	134,974	145,605	$6,747,327	$11,975,291	$18,722,618	$63.71
Rental	$31.64	$52.05	0	0	0	$0	$0	$0	
Private	$31.64	$52.05	471,151	47,651	51,405	$1,507,645	$2,675,800	$4,183,445	$8.88
Total			**813,905**	199,952	215,702	$8,880,395	$15,761,104	**$24,641,499**	**$30.28**
Fishing - Flats or Back Country									
Charter/Party	$36.09	$59.38	0	0	0	$0	$0	$0	
Rental	$31.64	$52.05	0	0	0	$0	$0	$0	
Private	$31.64	$52.05	29,335	1,976	2,132	$62,518	$110,958	$173,476	$5.91
Total			**29,335**	1,976	2,132	$62,518	$110,958	**$173,476**	**$5.91**
Fishing - Bottom									
Charter	$36.09	$59.38	978	0	0	$0	$0	$0	$0.00
Party	$49.99	$82.25	24,447	11,400	12,298	$569,876	$1,011,427	$1,581,302	$64.68
Rental	$31.64	$52.05	0	0	0	$0	$0	$0	
Private	$31.64	$52.05	134,976	15,732	16,971	$497,739	$883,398	$1,381,137	$10.23
Total			**160,401**	27,132	29,269	$1,067,615	$1,894,825	**$2,962,440**	**$18.47**
Viewing									
Glass Bottom Boat	$49.99	$82.25	16,483	1,596	1,722	$79,783	$141,600	$221,382	$13.43
Total			**16,483**	1,596	1,722	$79,783	$141,600	**$221,382**	**$13.43**
All Activities - Boat Modes			**2,694,915**	**413,581**	**448,378**	**18,767,795**	**33,492,033**	**$52,259,828**	**$19.39**
All Fishing			**1,003,641**					**$27,777,415**	**$27.68**

Activity-Boat Mode	Summer Value Per Person Trip	Winter Value Per Person Trip	Annual Person-Days; Artificial Reefs	Summer Person-Trips; Artificial Reefs	Winter Person-Trips; Artificial Reefs	Summer Value; Artificial Reefs	Winter Value; Artificial Reefs	Annual Value; Artificial Reefs	User Value Per Person-day (Artificial Reefs)
Snorkeling									
Charter/Party	$13.50	$18.18	51,231	11,776	4,912	$159,009	$89,313	$248,321	$4.85
Rental	$7.55	$10.17	0	0	0	$0	$0	$0	
Private	$7.55	$10.17	230,116	65,536	27,336	$494,762	$277,901	$772,663	$3.36
Total			**281,347**	77,311	32,248	$653,771	$367,213	**$1,020,984**	**$3.63**
Scuba Diving									
Charter/Party	$13.50	$18.18	25,318	7,168	2,990	$96,788	$54,364	$151,152	$5.97
Rental	$7.55	$10.17	0	0	0	$0	$0	$0	
Private	$7.55	$10.17	143,347	49,664	20,716	$374,937	$210,597	$585,534	$4.08
Total			**168,664**	56,832	23,705	$471,725	$264,961	**$736,686**	**$4.37**
Fishing - Offshore/Trolling									
Charter	$7.36	$9.91	93,657	44,032	18,366	$324,134	$182,061	$506,195	$5.40
Party	$8.75	$11.79	162,964	69,632	29,044	$609,405	$342,294	$951,699	$5.84
Rental	$7.27	$9.79	139,013	49,356	20,587	$358,860	$201,566	$560,426	$4.03
Private	$7.27	$9.79	318,640	115,711	48,265	$841,310	$472,551	$1,313,861	$4.12
Total			**714,274**	278,731	116,263	$2,133,708	$1,198,472	**$3,332,180**	**$4.67**
Fishing - Flats or Back Country									
Charter/Party	$7.36	$9.91	0	0	0	$0	$0	$0	
Rental	$7.27	$9.79	0	0	0	$0	$0	$0	
Private	$7.27	$9.79	59,393	20,992	8,756	$152,627	$85,728	$238,355	$4.01
Total			**59,393**	20,992	8,756	$152,627	$85,728	**$238,355**	**$4.01**
Fishing - Bottom									
Charter	$7.36	$9.91	6,088	1,024	427	$7,538	$4,234	$11,772	$1.93
Party	$8.75	$11.79	75,862	21,504	8,970	$188,199	$105,708	$293,907	$3.87
Rental	$7.27	$9.79	0	0	0	$0	$0	$0	
Private	$7.27	$9.79	103,684	38,400	16,017	$279,196	$156,820	$436,016	$4.21
Total			**185,635**	60,928	25,414	$474,932	$266,762	**$741,695**	**$4.00**
Viewing									
Glass Bottom Boat	$8.75	$11.79	3,124	1,024	427	$8,962	$5,034	$13,996	$4.48
Total			**3,124**	1,024	427	$8,962	$5,034	**$13,996**	**$4.48**
All Activities - Boat Modes			**1,412,438**	**495,818**	**206,813**	**3,895,725**	**2,188,172**	**$6,083,896**	**$4.31**
All Fishing			**959,302**					**$4,312,230**	**$4.50**

Activity-Boat Mode	Summer Value Per Person Trip	Winter Value Per Person Trip	Annual Person-Days; Artificial Reefs	Summer Person-Trips; Artificial Reefs	Winter Person-Trips; Artificial Reefs	Summer Value; Artificial Reefs	Winter Value; Artificial Reefs	Annual Value; Artificial Reefs	User Value Per Person-day (Artificial Reefs)
Table A.3.2-26: Calculation of Use Value of Artificial Reefs - Monroe County Visitors, 2000-2001									
Snorkeling									
Charter/Party	$17.37	$30.44	13,413	4,398	3,620	$76,404	$110,206	$186,610	$13.91
Rental	$31.22	$53.54	8,476	2,034	1,674	$63,498	$89,647	$153,145	$18.07
Private	$31.22	$53.54	99,889	18,801	15,476	$586,926	$828,627	$1,415,552	$14.17
Total			**121,778**	25,233	20,770	$726,827	$1,028,479	**$1,755,307**	**$14.41**
Scuba Diving									
Charter/Party	$17.37	$30.44	17,678	5,497	4,525	$95,505	$137,757	$233,262	$13.20
Rental	$16.56	$29.02	1,898	1,045	860	$17,298	$24,951	$42,249	$22.26
Private	$16.56	$29.02	56,056	11,765	9,684	$194,830	$281,025	$475,855	$8.49
Total			**75,632**	18,307	15,068	$307,633	$443,734	**$751,366**	**$9.93**
Fishing - Offshore/Trolling									
Charter	$22.65	$39.68	4,779	5,278	4,344	$119,512	$172,386	$291,898	$61.08
Party	$25.05	$43.89	5,616	2,419	1,991	$60,583	$87,386	$147,969	$26.35
Rental	$17.76	$31.13	10,097	1,979	1,629	$35,157	$50,711	$85,869	$8.50
Private	$17.76	$31.13	119,763	19,351	15,928	$343,760	$495,844	$839,604	$7.01
Total			**140,256**	29,027	23,892	$559,013	$806,327	**$1,365,340**	**$9.73**
Fishing - Flats or Back Country									
Charter/Party	$22.65	$39.68	0	0	0	$0	$0	$0	
Rental	$17.76	$31.13	0	0	0	$0	$0	$0	
Private	$17.76	$31.13	62,694	10,225	8,417	$181,646	$262,009	$443,654	$7.08
Total			**62,694**	10,225	8,417	$181,646	$262,009	**$443,654**	**$7.08**
Fishing - Bottom									
Charter	$22.65	$39.68	1,079	3,518	2,896	$79,675	$114,924	$194,599	$180.32
Party	$25.05	$43.89	1,233	1,539	1,267	$38,553	$55,609	$94,162	$76.34
Rental	$41.46	$60.40	4,152	880	724	$36,469	$43,730	$80,199	$19.31
Private	$41.46	$60.40	67,935	12,204	10,046	$506,007	$606,759	$1,112,765	$16.38
Total			**74,400**	18,142	14,933	$660,703	$821,022	**$1,481,725**	**$19.92**
Viewing									
Glass Bottom Boat	$25.05	$43.89	3,636	880	724	$22,030	$31,777	$53,807	$14.80
Total			**3,636**	880	724	$22,030	$31,777	**$53,807**	**$14.80**
All Activities - Boat Modes			**478,395**	101,813	83,803	2,457,851	3,393,348	**$5,851,199**	**$12.23**
All Fishing			**277,349**					**$3,290,720**	**$11.86**

Table A.3.2-27: Calculation of Use Value of Natural & Artificial Reefs - Palm Beach County Visitors, 2000-2001								
Activity-Boat Mode	Summer Person-Trips on Reefs	Winter Person-Trips on Reefs	Summer Value Per Person-Trip	Summer Total Value	Winter Value Per Person-Trip	Winter Total Value	Annual Value	Annual Person-Days	Value Per Person-day
Snorkeling									
Charter/Party	7,675	8,279	$20.10	$154,277	$34.54	$285,958	$440,235	34,171	$12.88
Rental	2,023	2,183	$10.30	$20,836	$17.69	$38,619	$59,455	9,528	$6.24
Private	15,768	17,010	$10.30	$162,374	$17.69	$300,966	$463,339	83,785	$5.53
Total							$963,029	**127,484**	**$7.55**
Scuba Diving									
Charter/Party	192,707	207,886	$35.76	$6,891,281	$50.49	$10,496,361	$17,387,642	786,983	$22.09
Rental	1,116	1,204	$10.30	$11,495	$17.69	$21,307	$32,803	5,257	$6.24
Private	33,211	35,827	$10.30	$341,990	$17.69	$633,892	$975,883	127,484	$7.65
Total							$18,396,328	**919,723**	**$20.00**
Fishing - Offshore/Trolling									
Charter	5,651	6,097	$12.53	$70,790	$21.52	$131,213	$202,003	23,620	$8.55
Party	13,256	14,301	$14.85	$196,911	$25.52	$364,982	$561,893	43,894	$12.80
Rental	209	226	$10.39	$2,175	$17.86	$4,032	$6,208	986	$6.30
Private	18,071	19,494	$10.39	$187,811	$17.86	$348,116	$535,927	96,941	$5.53
Total							$1,306,030	**165,440**	**$7.89**
Fishing - Flats or Back Country									
Charter/Party	0	0	$12.53	$0	$21.52	$0	$0	0	
Rental	0	0	$10.39	$0	$17.86	$0	$0	0	
Private	140	151	$10.39	$1,450	$17.86	$2,688	$4,138	657	$6.30
Total							$4,138	**657**	**$6.30**
Fishing - Bottom									
Charter	2,299	2,480	$12.53	$28,796	$21.52	$53,374	$82,169	10,826	$7.59
Party	4,814	5,193	$14.85	$71,510	$25.52	$132,546	$204,056	19,290	$10.58
Rental	0	0	$10.39	$0	$17.86	$0	$0	0	
Private	2,582	2,785	$10.39	$26,830	$17.86	$49,731	$76,561	17,367	$4.41
Total							$362,786	**47,483**	**$7.64**
Viewing									
Glass Bottom Boat	0	0	$14.85	$0	$25.52	$0	$0	0	
Total							$0	**0**	
All Activities - Boat Modes	299,522	323,115					**21,032,312**	**1,260,787**	**$16.68**
All Fishing							$1,672,955	**213,580**	**$7.83**

Table A.3.2-28: Calculation of Use Value of Natural & Artificial Reefs - Broward County Visitors, 2000-2001								
Activity-Boat Mode	Summer Person-Trips on Reefs	Winter Person-Trips on Reefs	Summer Value Per Person-Trip	Summer Total Value	Winter Value Per Person-Trip	Winter Total Value	Annual Value	Annual Person-Days	Value Per Person-day
Snorkeling									
Charter/Party	13,968	23,948	$47.73	$666,630	$68.89	$1,649,770	$2,316,399	229,147	$10.11
Rental	0	0	$31.30	$0	$45.17	$0	$0	0	
Private	7,296	7,871	$31.30	$228,325	$45.17	$355,542	$583,867	125,239	$4.66
Total							$2,900,266	**354,386**	**$8.18**
Scuba Diving									
Charter/Party	294,115	317,281	$70.31	$20,679,198	$107.84	$34,215,623	$54,894,822	2,603,862	$21.08
Rental	23,256	25,087	$31.30	$727,785	$45.17	$1,133,291	$1,861,076	176,011	$10.57
Private	35,339	38,123	$31.30	$1,105,948	$45.17	$1,722,158	$2,828,106	240,323	$11.77
Total							$59,584,003	**3,020,197**	**$19.73**
Fishing - Offshore/Trolling									
Charter	34,427	37,139	$34.46	$1,186,315	$49.74	$1,847,303	$3,033,618	101,865	$29.78
Party	271,771	293,178	$47.73	$12,970,272	$68.89	$20,197,021	$33,167,292	612,206	$54.18
Rental	0	0	$30.21	$0	$43.60	$0	$0	0	
Private	112,174	121,010	$30.21	$3,388,292	$43.60	$5,276,174	$8,664,466	1,109,121	$7.81
Total							$44,865,376	**1,823,192**	**$24.61**
Fishing - Flats or Back Country									
Charter/Party	0	0	$34.46	$0	$49.74	$0	$0	0	
Rental	0	0	$30.21	$0	$43.60	$0	$0	0	
Private	5,928	6,395	$30.21	$179,056	$43.60	$278,822	$457,878	73,633	$6.22
Total							$457,878	**73,633**	**$6.22**
Fishing - Bottom									
Charter	456	492	$34.46	$15,713	$49.74	$24,468	$40,180	2,037	$19.72
Party	22,800	24,595	$47.73	$1,088,110	$68.89	$1,694,381	$2,782,491	93,273	$29.83
Rental	0	0	$30.21	$0	$43.60	$0	$0	0	
Private	35,111	37,877	$30.21	$1,060,563	$43.60	$1,651,485	$2,712,048	301,250	$9.00
Total							$5,534,720	**396,561**	**$13.96**
Viewing									
Glass Bottom Boat	5,244	5,657	$47.73	$250,265	$68.89	$389,708	$639,973	54,157	$11.82
Total							$639,973	**54,157**	**$11.82**
All Activities - Boat Modes	861,885	938,653					**113,982,216**	**5,722,125**	**$19.92**
All Fishing							$50,857,974	**2,293,386**	**$22.18**

Table A.3.2-29: Calculation of Use Value of Natural & Artificial Reefs - Miami-Dade County Visitors, 2000-2001								
Activity-Boat Mode	Summer Person-Trips on Reefs	Winter Person-Trips on Reefs	Summer Value Per Person-Trip	Summer Total Value	Winter Value Per Person-Trip	Winter Total Value	Annual Value	Annual Person-Days	Value Per Person-day
Snorkeling									
Charter/Party	57,344	23,919	$21.17	$1,214,046	$28.64	$685,038	$1,899,085	130,923	$14.51
Rental	0	0	$11.84	$0	$16.01	$0	$0	0	
Private	219,647	91,618	$11.84	$2,599,970	$16.01	$1,467,060	$4,067,029	749,783	$5.42
Total							$5,966,114	**880,706**	**$6.77**
Scuba Diving									
Charter/Party	50,176	20,929	$21.17	$1,062,291	$28.64	$599,408	$1,661,699	127,994	$12.98
Rental	0	0	$11.84	$0	$16.01	$0	$0	0	
Private	116,735	48,692	$11.84	$1,381,802	$16.01	$779,696	$2,161,498	311,483	$6.94
Total							$3,823,197	**439,477**	**$8.70**
Fishing - Offshore/Trolling									
Charter	98,303	41,004	$11.54	$1,134,623	$15.61	$640,223	$1,774,845	208,632	$8.51
Party	138,239	57,662	$13.72	$1,896,948	$18.56	$1,070,372	$2,967,320	363,019	$8.17
Rental	123,391	51,468	$11.40	$1,406,660	$15.42	$793,722	$2,200,382	347,534	$6.33
Private	412,669	172,131	$11.40	$4,704,430	$15.42	$2,654,523	$7,358,953	1,136,387	$6.48
Total							$14,301,499	**2,055,572**	**$6.96**
Fishing - Flats or Back Country									
Charter/Party	0	0	$11.54	$0	$15.61	$0	$0	0	
Rental	0	0	$11.40	$0	$15.42	$0	$0	0	
Private	211,455	88,201	$11.40	$2,410,583	$15.42	$1,360,196	$3,770,779	598,273	$6.30
Total							$3,770,779	**598,273**	**$6.30**
Fishing - Bottom									
Charter	5,120	2,136	$11.54	$59,095	$15.61	$33,345	$92,440	13,561	$6.82
Party	63,488	26,482	$13.72	$871,191	$18.56	$491,578	$1,362,769	168,992	$8.06
Rental	0	0	$11.40	$0	$15.42	$0	$0	0	
Private	180,223	75,174	$11.40	$2,054,540	$15.42	$1,159,295	$3,213,835	486,626	$6.60
Total							$4,669,044	**669,179**	**$6.98**
Viewing									
Glass Bottom Boat	5,632	2,349	$13.72	$77,283	$18.56	$43,608	$120,891	17,184	$7.03
Total							$120,891	**17,184**	**$7.03**
All Activities - Boat Modes	1,682,421	701,764					**32,651,524**	**4,660,392**	**$7.01**
All Fishing							$22,741,322	**3,323,024**	**$6.84**

Table A.3.2-30 Calculation of Use Value of Natural & Artificial Reefs - Monroe County Visitors, 2000-2001									
Activity-Boat Mode	Summer Person-Trips on Reefs	Winter Person-Trips on Reefs	Summer Value Per Person-Trip	Summer Total Value	Winter Value Per Person-Trip	Winter Total Value	Annual Value	Annual Person-Days	Value Per Person-day
Snorkeling									
Charter/Party	67,289	55,386	$26.80	$1,803,605	$45.91	$2,543,006	$4,346,611	264,114	$16.46
Rental	15,173	12,489	$43.35	$657,685	$71.93	$898,391	$1,556,076	65,066	$23.92
Private	92,577	76,201	$43.35	$4,012,830	$71.93	$5,481,489	$9,494,320	433,817	$21.89
Total							$15,397,007	**762,996**	**$20.18**
Scuba Diving									
Charter/Party	32,435	26,698	$50.06	$1,623,657	$66.62	$1,778,460	$3,402,117	117,416	$28.97
Rental	5,442	4,480	$25.55	$139,063	$43.77	$196,073	$335,136	18,600	$18.02
Private	43,980	36,200	$25.55	$1,123,742	$43.77	$1,584,427	$2,708,169	221,952	$12.20
Total							$6,445,422	**357,967**	**$18.01**
Fishing - Offshore/Trolling									
Charter	13,304	10,951	$34.94	$464,827	$59.85	$655,386	$1,120,213	45,970	$24.37
Party	26,388	21,720	$38.64	$1,019,706	$66.19	$1,437,742	$2,457,448	54,019	$45.49
Rental	6,157	5,068	$27.41	$168,758	$46.95	$237,942	$406,700	31,414	$12.95
Private	54,095	44,526	$27.41	$1,482,663	$46.95	$2,090,491	$3,573,154	334,791	$10.67
Total							$7,557,516	**466,194**	**$16.21**
Fishing - Flats or Back Country									
Charter/Party	0	0	$34.94	$0	$59.85	$0	$0	0	
Rental	0	0	$27.41	$0	$46.95	$0	$0	0	
Private	25,728	21,177	$27.41	$705,169	$46.95	$994,258	$1,699,427	157,746	$10.77
Total							$1,699,427	**157,746**	**$10.77**
Fishing - Bottom									
Charter	3,958	3,258	$34.94	$138,296	$59.85	$194,991	$333,286	10,380	$32.11
Party	2,859	2,353	$38.64	$110,468	$66.19	$155,755	$266,224	11,863	$22.44
Rental	2,529	2,082	$56.30	$142,369	$82.50	$171,721	$314,090	11,938	$26.31
Private	40,021	32,942	$56.30	$2,253,139	$82.50	$2,717,675	$4,970,814	222,777	$22.31
Total							$5,884,414	**256,959**	**$22.90**
Viewing									
Glass Bottom Boat	18,142	14,933	$38.64	701,048	$66.19	$988,448	$1,689,496	75,000	$22.53
Total							$1,689,496	**75,000**	**$22.53**
All Activities - Boat Modes	450,077	370,462					**38,673,282**	**2,076,862**	**$18.62**
All Fishing							$15,141,356	**880,899**	**$17.19**

Table A.3.2-31: Calculation of Use Value of New Artificial Reefs - Palm Beach County Visitors, 2000-2001									
Activity-Boat Mode	Summer Value Per Person-Trip	Winter Value Per Person-Trip	Artificial Reefs - Annual Person-Days	Summer Trips - Artificial Reefs	Winter Trips - Artificial Reefs	Summer Value - Artificial Reef Users	Winter Value - Artificial Reef Users	Annual Value - Artificial Reef Users	Value Per Person-day
Snorkeling									
Charter/Party	$11.25	$21.96	6,276	1,395	1,505	$15,692	$33,063	$48,755	$7.77
Rental	$5.76	$11.25	5,558	253	273	$1,457	$3,070	$4,527	$0.81
Private	$5.76	$11.25	25,105	5,721	6,172	$32,958	$69,443	$102,401	$4.08
Total			**36,940**	7,370	7,950	$50,107	$105,576	**$155,683**	**$4.21**
Scuba Diving									
Charter/Party	$20.69	$39.33	179,124	50,654	54,643	$1,048,255	$2,149,088	$3,197,343	$17.85
Rental	$5.76	$11.25	1,643	349	376	$2,010	$4,234	$6,244	$3.80
Private	$5.76	$11.25	57,155	16,257	17,537	$93,650	$197,319	$290,969	$5.09
Total			**237,921**	67,259	72,557	$1,143,914	$2,350,641	**$3,494,556**	**$14.69**
Fishing - Offshore/Trolling									
Charter	$7.01	$13.69	5,399	2,721	2,935	$19,068	$40,175	$59,243	$10.97
Party	$8.30	$16.23	10,032	4,326	4,667	$35,908	$75,738	$111,646	$11.13
Rental	$5.81	$11.36	0	0	0	$0	$0	$0	
Private	$5.81	$11.36	32,937	6,140	6,623	$35,698	$75,216	$110,914	$3.37
Total			**48,368**	13,187	14,225	$90,674	$191,129	**$281,803**	**$5.83**
Fishing - Flats or Back Country									
Charter/Party	$7.01	$13.69	0	0	0	$0	$0	$0	
Rental	$5.81	$11.36	0	0	0	$0	$0	$0	
Private	$5.81	$11.36	0	0	0	$0	$0	$0	
Total			**0**	0	0	$0	$0	**$0**	
Fishing - Bottom									
Charter	$7.01	$13.69	2,474	0	0	$0	$0	$0	$0.00
Party	$8.31	$16.23	4,409	1,256	1,355	$10,436	$21,988	$32,424	$7.35
Rental	$5.81	$11.36	0	0	0	$0	$0	$0	
Private	$5.81	$11.36	0	0	0	$0	$0	$0	
Total			**6,883**	1,256	1,355	$10,436	$21,988	**$32,424**	**$4.71**
Viewing									
Glass Bottom Boat	$8.31	$16.23	0	0	0	$0	$0	$0	
Total			**0**	0	0	$0	$0	**$0**	
All Activities - Boat Modes			**330,112**	**89,071**	**96,087**	**1,295,132**	**2,669,335**	**$3,964,467**	**$12.01**
All Fishing			55,252					314227.698	$5.69

Activity-Boat Mode	Summer Value Per Person-Trip	Winter Value Per Person-Trip	Artificial Reefs - Annual Person-Days	Summer Trips - Artificial Reefs	Winter Trips - Artificial Reefs	Summer Value - Artificial Reef Users	Winter Value - Artificial Reef Users	Annual Value - Artificial Reef Users	Value Per Person-day
Snorkeling									
Charter/Party	$13.07	$19.20	52,880	3,492	5,987	$45,641	$114,950	$160,591	$3.04
Rental	$8.57	$12.59	0	0	0	$0	$0	$0	
Private	$8.57	$12.59	34,789	1,368	1,476	$11,724	$18,580	$30,304	$0.87
Total			**87,669**	4,860	7,463	$57,365	$133,529	**$190,895**	**$2.18**
Scuba Diving									
Charter/Party	$12.93	$32.84	1,370,373	152,301	164,298	$1,968,493	$5,395,535	$7,364,028	$5.37
Rental	$8.57	$12.59	88,006	11,400	12,298	$97,702	$154,830	$252,532	$2.87
Private	$8.57	$12.59	128,745	14,364	15,495	$123,104	$195,086	$318,191	$2.47
Total			**1,587,123**	178,065	192,091	$2,189,299	$5,745,451	**$7,934,751**	**$5.00**
Fishing - Offshore/Trolling									
Charter	$9.44	$13.86	48,895	17,328	18,693	$163,518	$259,131	$422,650	$8.64
Party	$13.07	$19.20	293,859	134,974	145,605	$1,764,104	$2,795,618	$4,559,722	$15.52
Rental	$8.27	$12.15	0	0	0	$0	$0	$0	
Private	$8.27	$12.15	471,151	47,651	51,405	$394,177	$624,662	$1,018,840	$2.16
Total			**813,905**	199,952	215,702	$2,321,800	$3,679,411	**$6,001,211**	**$7.37**
Fishing - Flats or Back Country									
Charter/Party	$9.44	$13.86	0	0	0	$0	$0	$0	
Rental	$8.27	$12.15	0	0	0	$0	$0	$0	
Private	$8.27	$12.15	29,335	1,976	2,132	$16,345	$25,903	$42,249	$1.44
Total			**29,335**	1,976	2,132	$16,345	$25,903	**$42,249**	**$1.44**
Fishing - Bottom									
Charter	$9.44	$13.86	978	0	0	$0	$0	$0	$0.00
Party	$13.07	$19.20	24,447	11,400	12,298	$148,995	$236,116	$385,112	$15.75
Rental	$8.27	$12.15	0	0	0	$0	$0	$0	
Private	$8.27	$12.15	134,976	15,732	16,971	$130,135	$206,228	$336,363	$2.49
Total			**160,401**	27,132	29,269	$279,130	$442,345	**$721,475**	**$4.50**
Viewing									
Glass Bottom Boat	$13.07	$19.20	16,483	1,596	1,722	$20,859	$33,056	$53,916	$3.27
Total			**16,483**	1,596	1,722	$20,859	$33,056	**$53,916**	**$3.27**
All Activities - Boat Modes			**2,694,915**	**413,581**	**448,378**	**4,884,799**	**10,059,696**	**$14,944,495**	**$5.55**
All Fishing			1,003,641					6764934.583	$6.74

Table A.3.2-32: Calculation of Use Value of New Artificial Reefs - Broward County Visitors, 2000-2001

Activity-Boat Mode	Summer Value Per Person-Trip	Winter Value Per Person-Trip	Artificial Reefs Annual Person-Days	Summer Trips Artificial Reefs	Winter Trips - Artificial Reefs	Summer Value - Artificial Reef Users	Winter Value - Artificial Reef Users	Annual Value - Artificial Reef Users	Value Per Person-day
Table A.3.2-33: Calculation of Use Value of New Artificial Reefs - Miami-Dade County Visitors, 2000-2001									
Snorkeling									
Charter/Party	$5.59	$16.73	51,231	11,776	4,912	$65,878	$82,155	$148,033	$2.89
Rental	$3.13	$9.35	0	0	0	$0	$0	$0	
Private	$3.13	$9.35	230,116	65,536	27,336	$204,982	$255,630	$460,612	$2.00
Total			**281,347**	77,311	32,248	$270,860	$337,786	**$608,645**	**$2.16**
Scuba Diving									
Charter/Party	$5.59	$16.73	25,318	7,168	2,990	$40,100	$50,008	$90,107	$3.56
Rental	$3.13	$9.35	0	0	0	$0	$0	$0	
Private	$3.13	$9.35	143,347	49,664	20,716	$155,338	$193,720	$349,058	$2.44
Total			**168,664**	56,832	23,705	$195,437	$243,727	**$439,165**	**$2.60**
Fishing - Offshore/Trolling									
Charter	$3.05	$9.12	93,657	44,032	18,366	$134,290	$167,471	$301,761	$3.22
Party	$3.63	$10.84	162,964	69,632	29,044	$252,479	$314,863	$567,342	$3.48
Rental	$3.01	$9.01	139,013	49,356	20,587	$148,677	$185,413	$334,090	$2.40
Private	$3.01	$9.01	318,640	115,711	48,265	$348,558	$434,682	$783,240	$2.46
Total			**714,274**	278,731	116,263	$884,003	$1,102,429	**$1,986,432**	**$2.78**
Fishing - Flats or Back Country									
Charter/Party	$3.05	$9.12	0	0	0	$0	$0	$0	
Rental	$3.01	$9.01	0	0	0	$0	$0	$0	
Private	$3.01	$9.01	59,393	20,992	8,756	$63,234	$78,858	$142,092	$2.39
Total			**59,393**	20,992	8,756	$63,234	$78,858	**$142,092**	**$2.39**
Fishing - Bottom									
Charter	$3.05	$9.12	6,088	1,024	427	$3,123	$3,895	$7,018	$1.15
Party	$3.63	$10.84	75,862	21,504	8,970	$77,971	$97,237	$175,208	$2.31
Rental	$3.01	$9.01	0	0	0	$0	$0	$0	
Private	$3.01	$9.01	103,684	38,400	16,017	$115,672	$144,253	$259,925	$2.51
Total			**185,635**	60,928	25,414	$196,766	$245,385	**$442,151**	**$2.38**
Viewing									
Glass Bottom Boat	$3.63	$10.84	3,124	1,024	427	$3,713	$4,630	$8,343	$2.67
Total			**3,124**	1,024	427	$3,713	$4,630	**$8,343**	**$2.67**
All Activities - Boat Modes			**1,412,438**	**495,818**	**206,813**	**1,614,014**	**2,012,815**	**$3,626,829**	**$2.57**
All Fishing			959,302			$0	$0	2570675.386	$2.68

Activity-Boat Mode	Summer Value Per Person-Trip	Winter Value Per Person-Trip	Artificial Reefs Annual Person-Days	Summer Trips Artificial Reefs	Winter Trips - Artificial Reefs	Summer Value - Artificial Reef Users	Winter Value - Artificial Reef Users	Annual Value - Artificial Reef Users	Value Per Person-day
Snorkeling									
Charter/Party	$5.68	$10.96	13,413	4,398	3,620	$24,986	$39,687	$64,673	$4.82
Rental	$5.42	$10.45	8,476	2,034	1,674	$11,016	$17,497	$28,514	$3.36
Private	$5.42	$10.45	99,889	18,801	15,476	$101,826	$161,734	$263,559	$2.64
Total			**121,778**	25,233	20,770	$137,828	$218,918	**$356,746**	**$2.93**
Scuba Diving									
Charter/Party	$20.58	$29.28	17,678	5,497	4,525	$113,129	$132,478	$245,607	$13.89
Rental	$5.42	$10.45	1,898	1,045	860	$5,657	$8,985	$14,642	$7.71
Private	$5.42	$10.45	56,056	11,765	9,684	$63,716	$101,202	$164,917	$2.94
Total			**75,632**	18,307	15,068	$182,502	$242,665	**$425,167**	**$5.62**
Fishing - Offshore/Trolling									
Charter	$7.41	$14.29	4,779	5,278	4,344	$39,084	$62,079	$101,163	$21.17
Party	$8.19	$15.81	5,616	2,419	1,991	$19,813	$31,469	$51,282	$9.13
Rental	$5.81	$11.21	10,097	1,979	1,629	$11,498	$18,262	$29,759	$2.95
Private	$5.81	$11.21	119,763	19,351	15,928	$112,420	$178,561	$290,982	$2.43
Total			**140,256**	29,027	23,892	$182,815	$290,371	**$473,186**	**$3.37**
Fishing - Flats or Back Country									
Charter/Party	$7.41	$14.29	0	0	0	$0	$0	$0	
Rental	$5.81	$11.21	0	0	0	$0	$0	$0	
Private	$5.81	$11.21	62,694	10,225	8,417	$59,404	$94,353	$153,757	$2.45
Total			**62,694**	10,225	8,417	$59,404	$94,353	**$153,757**	**$2.45**
Fishing - Bottom									
Charter	$7.41	$14.29	1,079	3,518	2,896	$26,056	$41,386	$67,442	$62.49
Party	$8.19	$15.81	1,233	1,539	1,267	$12,608	$20,026	$32,634	$26.46
Rental	$5.81	$11.21	4,152	880	724	$5,110	$8,116	$13,226	$3.19
Private	$5.81	$11.21	67,935	12,204	10,046	$70,901	$112,615	$183,517	$2.70
Total			**74,400**	18,142	14,933	$114,676	$182,144	**$296,819**	**$3.99**
Viewing									
Glass Bottom Boat	$8.19	$15.81	3,636	880	724	$7,205	$11,443	$18,648	$5.13
Total			**3,636**	880	724	$7,205	$11,443	**$18,648**	**$5.13**
All Activities - Boat Modes			**478,395**	**101,813**	**83,803**	**684,429**	**1,039,894**	**$1,724,324**	**$3.60**
All Fishing			277,349					923762.7668	$3.33

Table A.3.2-34: Calculation of Use Value of New Artificial Reefs - Monroe County Visitors, 2000-2001

Table A.3.2-35		
Annual User Value and Asset Value of the Reefs by Visitors to Southeast Florida, 2000-2001[1]		
Reef Type/County	**Annual User Value (millions $)**	**Asset Value[2] (billions $)**
Natural Reefs	**$148.354**	**$4.945**
Palm Beach	$25.920	**$0.864**
Broward	$63.699	**$2.123**
Miami-Dade	$23.015	**$0.767**
Monroe	$35.720	**$1.191**
Artificial Reefs	**$70.101**	**$2.337**
Palm Beach	$5.906	**$0.197**
Broward	$52.260	**$1.742**
Miami-Dade	$6.084	**$0.203**
Monroe	$5.851	**$0.195**
Natural & Artificial Reefs	**$206.339**	**$6.878**
Palm Beach	$21.032	**$0.701**
Broward	$113.982	**$3.799**
Miami-Dade	$32.652	**$1.088**
Monroe	$38.673	**$1.289**
New Artificial Reefs	**$24.260**	**$0.809**
Palm Beach	$3.964	**$0.132**
Broward	$14.944	**$0.498**
Miami-Dade	$3.627	**$0.121**
Monroe	$1.724	**$0.057**

1. Values based on estimated values from logit model.

2. Asset Value is equal to the net present value of the flow of annual user value into perpetuity (indefinite future). Future dollars are converted to 2001 dollars using an interest (discount) rate of three (3) percent. This calculation assumes that the annual user value remains constant in the future (i.e, the amount of use remains constant and/or the value per unit of use remains constant in real terms-net of inflation). Thus, the asset values are considered "conservative" estimates.

Table A.3.2-36 (Visitors)					
Willingness to Pay for Natural Reefs in Southeast Florida: Natural Reef Users, Summer 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.8366	0.1634	$0	202
$10	$50	0.6441	0.1925	$2	177
$50	$100	0.5068	0.1373	$7	148
$100	$200	0.403	0.1038	$10	134
$200	$500	0.1806	0.2224	$44	144
$500	$1,000	0.1917	-0.0111	($6)	120
$1,000	Infinity	0	0.1917	$192	N/A
	Total Use Value (Sum Column 5):			$249.80	925

Table A.3.2-37 (Visitors)					
Willingness to Pay for Natural Reefs in Southeast Florida: Natural Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.9423	0.0577	$0	208
$10	$50	0.6942	0.2481	$2	206
$50	$100	0.6139	0.0803	$4	202
$100	$200	0.5153	0.0986	$10	196
$200	$500	0.2895	0.2258	$45	190
$500	$1,000	0.1618	0.1277	$64	173
$1,000	Infinity	0	0.1618	$162	N/A
	Total Use Value (Sum Column 5):			$287.17	1,175

Table A.3.2-38 (Visitors)					
Willingness to Pay for Artificial Reefs in Southeast Florida: Artificial Reef Users, Summer 2000 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.7355	0.2645	$0	121
$10	$50	0.581	0.1545	$2	105
$50	$100	0.3444	0.2366	$12	90
$100	$200	0.2674	0.077	$8	86
$200	$500	0.1047	0.1627	$33	86
$500	$1,000	0.087	0.0177	$9	69
$1,000	Infinity	0	0.087	$87	N/A
	Total Use Value (Sum Column 5):			$149.47	557

Table A.3.2-39 (Visitors)					
Willingness to Pay for Artificial Reefs in Southeast Florida: Artificial Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.9079	0.0921	$0	76
$10	$50	0.625	0.2829	$3	64
$50	$100	0.5652	0.0598	$3	69
$100	$200	0.3919	0.1733	$17	74
$200	$500	0.3472	0.0447	$9	72
$500	$1,000	0.1765	0.1707	$85	51
$1,000	Infinity	0	0.1765	$177	N/A
	Total Use Value (Sum Column 5):			$293.94	406

Table A.3.2-40 (Visitors)					
Willingness to Pay for New Artificial Reefs in Southeast Florida: Artificial Reef Users, Summer 2000 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$5	0.735	0.265	$0	117
$5	$10	0.7677	-0.0327	($0)	99
$10	$20	0.6923	0.0754	$1	91
$20	$30	0.4578	0.2345	$5	83
$30	$50	0.4118	0.046	$1	85
$50	$100	0.33333	0.07847	$4	72
$100	Infinity	0	0.33333	$33	N/A
	Total Use Value (Sum Column 5):			$43.92	547

Table A.3.2-41 (Visitors)					
Willingness to Pay for New Artificial Reefs in Southeast Florida: Artificial Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$5	0.9605	0.0395	$0	76
$5	$10	0.7941	0.1664	$1	68
$10	$20	0.7794	0.0147	$0	68
$20	$30	0.5974	0.182	$4	77
$30	$50	0.662	-0.0646	($2)	71
$50	$100	0.5472	0.1148	$6	53
$100	Infinity	0	0.5472	$55	N/A
	Total Use Value (Sum Column 5):			$63.14	413

Table A.3.2-42 (Visitors)					
Willingness to Pay for Natural & Artificial Reefs in Southeast Florida: All Reef Users, Summer 2000 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$20	0.7155	0.2845	$0	232
$20	$100	0.4483	0.2672	$5	203
$100	$200	0.2928	0.1555	$16	181
$200	$400	0.2264	0.0664	$13	159
$400	$1,000	0.071	0.1554	$62	169
$1,000	$2,000	0.1049	-0.0339	($34)	143
$2,000	Infinity	0	0.1049	$210	N/A
Total Use Value (Sum Column 5):				$272.23	1,087

Table A.3.2-43 (Visitors)					
Willingness to Pay for Natural & Artificial Reefs in Southeast Florida: All Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.8254	0.1746	$0	252
$20	$50	0.5081	0.3173	$6	248
$100	$100	0.3852	0.1229	$12	244
$200	$200	0.3333	0.0519	$10	240
$400	$500	0.1525	0.1808	$72	236
$1,000	$1,000	0.1147	0.0378	$38	218
$2,000	Infinity	0	0.1147	$229	N/A
	Total Use Value (Sum Column 5):			$368.54	1,438

Table A.3.2-44 (Visitors)					
Willingness to Pay for Natural Reefs in Southeast Florida: All Reef Users, Summer 2000 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	**Upper Bound for Interval**	**Probability of Payment at Upper Bound**	**Change in Density of Distribution**	**Willingness to Pay (Use Value $)**	**Sample Size**
[1]	**[2]**	**[3]**	**[4]**	**[5] = [1] * [4]**	**[6]**
$0	$10	0.8333	0.1667	$0	234
$10	$50	0.6089	0.2244	$2	202
$50	$100	0.45	0.1589	$8	180
$100	$200	0.354	0.096	$10	161
$200	$500	0.1754	0.1786	$36	171
$500	$1,000	0.1678	0.0076	$4	143
$1,000	Infinity	0	0.1678	$168	N/A
	Total Use Value (Sum Column 5):			**$227.11**	**1,091**

Table A.3.2-45 (Visitors)					
Willingness to Pay for Natural Reefs in Southeast Florida: All Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.9289	0.0711	$0	253
$10	$50	0.6948	0.2341	$2	249
$50	$100	0.6016	0.0932	$5	246
$100	$200	0.5021	0.0995	$10	241
$200	$500	0.2827	0.2194	$44	237
$500	$1,000	0.1751	0.1076	$54	217
$1,000	Infinity	0	0.1751	$175	N/A
	Total Use Value (Sum Column 5):			$289.73	1,443

Table A.3.2-46 (Visitors)					
Willingness to Pay for Artificial Reefs in Southeast Florida: All Reef Users, Summer 2000 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.7393	0.2607	$0	234
$10	$50	0.5268	0.2125	$2	205
$50	$100	0.4066	0.1202	$6	182
$100	$200	0.2883	0.1183	$12	163
$200	$500	0.1337	0.1546	$31	172
$500	$1,000	0.1042	0.0295	$15	144
$1,000	Infinity	0	0.1042	$104	N/A
	Total Use Value (Sum Column 5):			$169.84	1,100

Table A.3.2-47 (Visitors)					
Willingness to Pay for Artificial Reefs in Southeast Florida: All Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$10	0.8617	0.1383	$0	253
$10	$50	0.5645	0.2972	$3	248
$50	$100	0.4756	0.0889	$4	246
$100	$200	0.4274	0.0482	$5	241
$200	$500	0.2383	0.1891	$38	235
$500	$1,000	0.133	0.1053	$53	218
$1,000	Infinity	0	0.133	$133	N/A
	Total Use Value (Sum Column 5):			$235.71	1,441

Table A.3.2-48 (Visitors)					
Willingness to Pay for New Artificial Reefs in Southeast Florida: All Reef Users, Summer 2000 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$5	0.7665	0.2335	$0	227
$5	$10	0.7551	0.0114	$0	196
$10	$20	0.6614	0.0937	$1	189
$20	$30	0.4872	0.1742	$3	156
$30	$50	0.439	0.0482	$1	164
$50	$100	0.3154	0.1236	$6	149
$100	Infinity	0	0.3154	$32	N/A
Total Use Value (Sum Column 5):				$43.64	1,081

Table A.3.2-49 (Visitors)					
Willingness to Pay for New Artificial Reefs in Southeast Florida: All Reef Users, Winter 2001 - Turnbull Method ($ Per Party Per Trip)					
Lower Bound for Interval	Upper Bound for Interval	Probability of Payment at Upper Bound	Change in Density of Distribution	Willingness to Pay (Use Value $)	Sample Size
[1]	[2]	[3]	[4]	[5] = [1] * [4]	[6]
$0	$5	0.8972	0.1028	$0	253
$5	$10	0.7826	0.1146	$1	253
$10	$20	0.6872	0.0954	$1	243
$20	$30	0.6286	0.0586	$1	245
$30	$50	0.5783	0.0503	$2	230
$50	$100	0.4299	0.1484	$7	221
$100	Infinity	0	0.4299	$43	N/A
Total Use Value (Sum Column 5):				$54.62	1,445

Table A.3.2-50 (Visitors)				
Summary of Willingness to Pay for Natural and Artificial Reefs in Southeast Florida: 2000-2001 - Turnbull Method ($ Per Party Per Trip)				
Reef Type	Summer - All Reef Users	Winter - All Reef Users	Summer - Users Only[1]	Winter - Users Only[1]
1. Natural Reefs	$227.11	$289.73	$249.80	$287.17
2. Artificial Reefs	$169.84	$235.71	$149.47	$293.94
3. Natural & Artificial Reefs	$272.23	$368.54	$272.23	$368.54
4. New Artificial Reefs	$43.64	$54.62	$43.92	$63.14
Notes:				
1. "Users Only" means that the Natural Reef Valuation estimate was only based on the survey responses of the Natural Reef Users. For Artificial Reefs and New Artificial Reefs the values only include the survey responses of the Artificial Reef Users.				

Table A.3.2-51 (Visitors)			
Party Sizes by Type of Reef Use and Season			
Reef Type/Users/Season	N	Mean	Standard Error
All Reef Types - All Reef Users			
Summer	1,106	3.44	0.08
Winter	1,385	3.27	0.11
Natural Reefs - Users Only			
Summer	935	3.48	0.09
Winter	1,138	3.27	0.12
Artificial Reefs - Users Only			
Summer	557	3.22	0.11
Winter	386	3.33	0.23

Table A.3.2-52 (Visitors)			
Average Number of Annual Trips to Southeast Florida to Use the Reefs			
Reef Type/Users/Season	N	Mean	Standard Error
Summer - All Reef Users[1]	1,044	5.91	0.65
Winter - All Reef Users[1]	1,354	3.09	0.32
Summer - Users Only			
Artificial Reefs	562	7.69	1.15
Winter - Users Only			
Artificial Reefs	413	6.54	1.01
Notes			
1. For artificial reef users, the number of trips is equal to the number of trips to Southeast Florida to use the artificial reefs. For non artificial reef users, the number of trips is equal to their total trips.			

									Table A.3.2-53

Table A.3.2-53

Calculation of Visitor Use Value for Reefs in Palm Beach County, 2000 - 2001: Turnbull Method

Activity-Boat Mode	Summer Person-Trips on Reefs	Winter Person-Trips on Reefs	Summer Value Per Person-Trip	Summer Total Value	Winter Value Per Person-Trip	Winter Total Value	Annual Value	Annual Person-Days	Value Per Person-day	Asset Value
Natural Reefs										
All Reef Users	299,522	323,115	$66.02	$19,774,547	$88.60	$28,628,779	$48,403,326	1,260,787	$38.39	$1,613,444,214
Users Only	210,451	227,028	$71.78	$15,106,511	$82.52	$18,734,377	$33,840,888	930,675	$36.36	$1,128,029,603
Artificial Reefs										
All Reef Users	299,522	323,115	$49.37	$14,788,028	$72.08	$23,290,959	$38,078,987	1,260,787	$30.20	$1,269,299,576
Users Only	89,071	96,087	$46.42	$4,134,609	$88.27	$8,481,625	$12,616,235	330,112	$38.22	$420,541,163
Nat & Art Reefs	299,522	323,115	$79.14	$23,703,161	$112.70	$36,416,147	$60,119,308	1,260,787	$47.68	$2,003,976,950
New Artificial Reefs										
All Reef Users	299,522	323,115	$2.15	$642,936	$5.41	$1,746,637	$2,389,572	1,260,787	$1.90	$79,652,414
Users Only	89,071	96,087	$1.77	$157,985	$2.90	$278,578	$436,563	330,112	$1.32	$14,552,116

					Table A.3.2-54				
				Calculation of Visitor Use Value for Reefs in Broward County, 2000 - 2001: Turnbull Method					
Activity-Boat Mode	**Summer Person-Trips on Reefs**	**Winter Person-Trips on Reefs**	**Summer Value Per Person-Trip**	**Summer Total Value**	**Winter Value Per Person-Trip**	**Winter Total Value**	**Annual Value**	**Annual Person-Days**	**Value Per Person-day**	**Asset Value**
Natural Reefs										
All Reef Users	861,885	938,653	$66.02	$56,901,948	$88.60	$83,166,952	$140,068,901	5,722,125	$24.48	$4,668,963,352
Users Only	448,304	490,275	$71.78	$32,179,983	$82.52	$40,457,549	$72,637,532	3,027,210	$23.99	$2,421,251,063
Artificial Reefs										
All Reef Users	861,885	938,653	$49.37	$42,553,066	$72.08	$67,660,519	$110,213,586	5,722,125	$19.26	$3,673,786,195
Users Only	413,581	448,378	$46.42	$19,198,122	$88.27	$39,578,447	$58,776,569	2,694,915	$21.81	$1,959,218,967
Nat & Art Reefs	861,885	938,653	$79.14	$68,206,673	$112.70	$105,789,351	$173,996,023	5,722,125	$30.41	$5,799,867,440
New Artificial Reefs										
All Reef Users	861,885	938,653	$2.15	$1,850,070	$5.41	$5,074,001	$6,924,071	5,722,125	$1.21	$230,802,359
Users Only	413,581	448,378	$1.77	$733,569	$2.90	$1,299,951	$2,033,519	2,694,915	$0.75	$67,783,976

				Table A.3.2-55					
				Calculation of Visitor Use Value for Reefs in Miami-Dade County, 2000 - 2001: Turnbull Method					
Activity-Boat Mode	**Summer Person-Trips on Reefs**	**Winter Person-Trips on Reefs**	**Summer Value Per Person-Trip**	**Summer Total Value**	**Winter Value Per Person-Trip**	**Winter Total Value**	**Annual Value**	**Annual Person-Days**	**Value Per Person-day**	**Asset Value**
Natural Reefs										
All Reef Users	1,682,421	701,764	$66.02	$111,074,021	$88.60	$62,178,007	$173,252,029	4,660,392	$37.18	$5,775,067,619
Users Only	1,186,603	494,951	$71.78	$85,176,273	$82.52	$40,843,413	$126,019,686	3,247,954	$38.80	$4,200,656,208
Artificial Reefs										
All Reef Users	1,682,421	701,764	$49.37	$83,064,646	$72.08	$50,584,952	$133,649,598	4,660,392	$28.68	$4,454,986,598
Users Only	495,818	206,813	$46.42	$23,015,502	$88.27	$18,255,439	$41,270,941	1,412,438	$29.22	$1,375,698,047
Nat & Art Reefs	1,682,421	701,764	$79.14	$133,141,125	$112.70	$79,091,163	$212,232,288	4,660,392	$45.54	$7,074,409,604
New Artificial Reefs										
All Reef Users	1,682,421	701,764	$2.15	$3,611,383	$5.41	$3,793,469	$7,404,852	4,660,392	$1.59	$246,828,389
Users Only	495,818	206,813	$1.77	$879,432	$2.90	$599,598	$1,479,031	1,412,438	$1.05	$49,301,021

Table A.3.2-56
Calculation of Visitor Use Value for Reefs in Monroe County, 2000 - 2001: Turnbull Method
Activity-Boat Mode	**Summer Person-Trips on Reefs**	**Winter Person-Trips on Reefs**	**Summer Value Per Person-Trip**	**Summer Total Value**	**Winter Value Per Person-Trip**	**Winter Total Value**	**Annual Value**	**Annual Person-Days**	**Value Per Person-day**	**Asset Value**
Natural Reefs										
All Reef Users	450,077	370,462	$66.02	$29,714,241	$88.60	$32,823,840	$62,538,080	2,076,862	$30.11	$2,084,602,669
Users Only	348,264	286,659	$71.78	$24,998,950	$82.52	$23,655,134	$48,654,084	1,598,467	$30.44	$1,621,802,799
Artificial Reefs										
All Reef Users	450,077	370,462	$49.37	$22,221,244	$72.08	$26,703,853	$48,925,096	2,076,862	$23.56	$1,630,836,537
Users Only	101,813	83,803	$46.42	$4,726,084	$88.27	$7,397,313	$12,123,397	478,395	$25.34	$404,113,234
Nat & Art Reefs	450,077	370,462	$79.14	$35,617,576	$112.70	$41,752,314	$77,369,890	2,076,862	$37.25	$2,578,996,323
New Artificial Reefs										
All Reef Users	450,077	370,462	$2.15	$966,108	$5.41	$2,002,577	$2,968,684	2,076,862	$1.43	$98,956,149
Users Only	101,813	83,803	$1.77	$180,586	$2.90	$242,964	$423,550	478,395	$0.89	$14,118,328

Table A.3.2-57 (Visitors)	
Reasons for Saying "NO" to Reef Valuation Questions	
Reef Type/Reason for Saying "NO" to Randomly Assigned Dollar Amount	**Percent**
Natural Reefs	
A. A contribution of that amount is more than natural reefs are worth to me.	36.6
B. I don't really know how much a natural reefs are worth to me.	10.9
C. There are no problems with water quality or the natural reefs.	1.2
D. Not enough information to form a decision.	19.5
E. I don't understand of like the question.	1.4
F. Already pay too much to the government.	14.0
G. Government waste should be reduced to pay for water quality protection and management of the natural reefs.	10.8
H. Other Reason	5.7
Artificial Reefs	
A. A contribution of that amount is more than artificial reefs are worth to me.	36.0
B. I don't really know how much a artificial reefs are worth to me.	11.4
C. Water quality is not a problem and artificial reefs don't need any management.	1.5
D. Not enough information to form a decision.	19.9
E. I don't understand of like the question.	1.4
F. Already pay too much to the government.	12.2
G. Government waste should be reduced to pay for water quality protection and management of the artificial reefs.	9.6
H. Other Reason	7.9
Natural & Artificial Reefs	
A. A contribution of that amount is more than the reefs are worth to me.	36.8
B. I don't really know how much the reefs are worth to me.	9.4
C. Water quality is not a problem and the reefs don't need any management.	1.3
D. Not enough information to form a decision.	19.6
E. I don't understand of like the question.	1.3
F. Already pay too much to the government.	13.9
G. Government waste should be reduced to pay for water quality protection and management of reefs.	9.7
H. Other Reason	8.0
New Artificial Reefs	
A. A contribution of that amount is more than a new artificial reef is worth to me.	23.9
B. I don't really know how much an artificial reef is worth to me.	9.4
C. There are enough artificial reefs already.	1.2
D. Not enough information to form a decision.	18.1
E. I don't understand of like the question.	1.6
F The government should fund the artificial reef program out of general revenue and not a specific tax or fee.	17.1
G. Already pay too much to the government.	10.2
H. Government waste should be reduced to fund the artificial reef program.	10.7
I. Other reason.	7.9

Table A.3.2-58 (Visitors)		
Relationship Between Protestors/Scenario Rejection and Dollar Amounts		
	Percent	Sample
Reef Type/Dollar Amount	NO	Size
Natural Reefs		
$10	9.57	491
$50	23.46	456
$100	32.48	431
$200	34.96	409
$500	45.74	411
$1,000	45.36	366
Artificial Reefs		
$10	16.29	491
$50	31.36	456
$100	38.75	431
$200	39.36	409
$500	48.42	411
$1,000	48.09	366
Natural & Artificial Reefs		
$20	18.33	491
$100	35.53	456
$200	43.85	431
$400	43.28	409
$1,000	50.61	411
$2,000	47.54	366
New Artificial Reefs		
$5	15.02	486
$10	20.09	453
$20	27.19	445
$30	31.39	411
$50	32.33	399
$100	39.79	377