

Willingness to Pay for Whale Shark Conservation in Sorsogon, Philippines

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EEPSEA was established in May 1993 to support research and training in environmental and resource economics. Its objective is to enhance local capacity to undertake the economic analysis of environmental problems and policies. It uses a networking approach, involving courses, meetings, technical support, access to literature, and opportunities for comparative research. Member countries are Thailand, Malaysia, Indonesia, the Philippines, Vietnam, Cambodia, Lao PDR, China, Papua New Guinea, and Sri Lanka.

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Annex A. Conservation Value of Whale Sharks: Survey of Sorsogon Residents
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WILLINGNESS TO PAY FOR WHALE SHARK CONSERVATION IN SORSOGON, PHILIPPINES

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EXECUTIVE SUMMARY

Societies continually make choices among various options that affect their welfare. Tradeoffs are typically difficult to make especially in a developing country context where even the basic needs are sometimes hard to finance. It then becomes an empirical question whether people from a developing country perceive any benefit from what can be considered as a non-essential good like the preservation of certain endangered species and would therefore be willing to sacrifice certain things for it. Using contingent valuation methodology (CVM), this paper sets out to determine if such benefit for whale shark preservation exists for developing country citizens, or if they are too poor to pay for conservation.

The study was carried out in Sorsogon province where whale sharks are popularly known; the area is touted worldwide as having the largest congregation of the species during peak season. Various multivariate logit regression analyses were done to generate sensitivity analysis of the estimates prior to the welfare value calculation. Sensitivity to payment designs was also tested through hypothesis testing.

Survey results show that the people are aware and concerned about environmental issues, including the precarious condition of whale sharks in Sorsogon. They are not, however, able or willing to pay for the implementation of the Conservation Program because poverty, employment, and other economic concerns take precedence over environmental issues. Detailed observance of the entire CV exercise generated zero or close to zero welfare value.

It is interesting to note that after an elaborate preparation, implementation, and analysis of CV data, results show zero or close to zero welfare values. But clearly, the whole exercise had achieved what it set out to do. The message is clear that with meager available resources, people in a developing country like the Philippines are not willing to pay for the conservation of wildlife. Government, as it stands now, has limited budget to support basic services in supporting human life, hence, funding for species conservation is expectedly low. Financing of conservation programs, therefore, necessitates assistance from the international community. But be that as it may, there is also a lot at stake for the Philippines in ensuring the continuous existence of whale sharks and the country will do well to proactively explore alternative financing options for conservation.

1.0 INTRODUCTION

Societies continually make choices among various options that affect their welfare. Tradeoffs are typically difficult to make especially in a developing country context where even the basic needs are sometimes hard to finance. It then becomes an empirical question whether people from a developing country perceive any benefit from what can be considered as a non-essential good like the preservation of certain endangered species and would therefore be willing to sacrifice certain things for it. This study explored this particular issue in the case of whale sharks in Sorsogon, Philippines using contingent valuation methodology (CVM) to capture the value to people of preserving the species.

One of the most publicly known endangered species found in Philippine waters is the whale shark (*Rhincodon typus*), known as the world's largest fish. It has a migratory nature, making it vulnerable to a wide range of threats, hence requiring collaboration of various nations for its protection. The World Conservation Union (IUCN) has declared this species as vulnerable. Likewise, in 2002, the Convention on International Trade in Endangered Species (CITES) listed whale sharks on its Appendix II, which regulates international trade in species whose survival in the wild may be threatened if levels of trade are not regulated.



Source: Philippine Dept. of Tourism website

Dr. Scott Eckert, a senior research biologist of Hubbs Sea World Research Institute in San Diego, California, in an e-mail to the Sorsogon Provincial Tourism Council (SPTC), said that Donsol town had the biggest known concentration of whale sharks in the world (cited by Jamoralin, n.d.). Donsol, Sorsogon is located on the southernmost island of Luzon. The November 2004 issue of *TIME* magazine identified the whale shark interaction program in Donsol waters as the “Best Place for an Animal Encounter.” However, despite the precarious condition of this species and the privileged position of Donsol as ‘whale shark capital’ of the world, certain existing factors threaten the continuous migration and presence of whale sharks in the area. The local government of Donsol municipality is already investing in the protection of whale sharks in the area; however, its resources are not enough to cover all activities needed to be done. Toward this end, it is imperative to look at the viability of implementing a more comprehensive conservation program for whale sharks in Sorsogon.

This paper aims to estimate the willingness to pay of Sorsogon residents to preserve the continuous presence of whale sharks using contingent valuation methodology. CVM is a method of estimating the monetary value that a person places on a good or service that is not normally sold in markets. The approach directly asks people if they are willing to pay for the good rather than inferring this from observed behavior (World Bank Institute 2002). The National Oceanic and Atmospheric Administration

(NOAA) Panel concluded that CVM can produce estimates reliable enough to be the starting-point for administrative and judicial determinations (Arrow et al. 1993).

The focus of this study is to determine whether or not such economic value or benefit for whale shark preservation exists for citizens of a developing country. If such value does exist, would such potential revenue be enough to cover funds for the implementation of a conservation program? The study also extracted some rough estimates to capture certain use values of whale shark that might be a relevant consideration in making an informed policy decision on whale shark conservation in Sorsogon.

2.0 CVM DESIGN

This CVM survey presents a hypothetical scenario about a proposed Comprehensive Whale Shark Conservation Program in Sorsogon. The different aspects and components of the Program, including the involved institutions who will pay and payment vehicle, are presented in the contingent or hypothetical scenario. On the basis of the given scenario, the respondents were asked to decide whether they are willing to pay or to vote for or against a public program at a particular price provision. A great deal of the study was spent crafting this hypothetical scenario and generating the appropriate survey instrument that could best assess and capture the existence of whale shark preservation benefits for the people of Sorsogon.

2.1 Questionnaire Development and Design

The key element in a CVM study is a properly designed questionnaire. A questionnaire is a data-collection instrument that sets out, in a formal way, the questions designed to elicit the desired information (Bateman et al. 2002)

2.1.1 Procedures observed

Much importance was given to ensuring that the respondents understood and accepted the hypothetical scenario. The Project's initial activities focused on gathering scientific information and proper conservation measures for whale sharks, which were then presented as the Conservation Program. The Program was framed based on consultations with local whale shark experts and existing scientific literature.

Qualitative and quantitative information was obtained from three main sources: personal interviews and focus group discussions, pilot surveys of households, and the main survey of households.

Personal Interviews and Focus Group Discussions (FGDs)

The personal interviews gathered the respondents' insights on what institutions will be involved, payment vehicle, timing of payment, technical and political feasibility of the program, and other information. Then in the course of the series of FGDs held, all

the information was presented, refined, revised, and finalized in preparation for the survey pre-test. Several FGDs were conducted for young professionals, government bureaucrats, and middle-income and low-income household heads in Sorsogon.

Pre-tests

Pre-testing refers to testing out the questionnaire on a small sample of respondents to identify and correct potential problems (Bateman et al. 2002). The survey pre-test also provided the indicators that were used to plan the required overall sample size. Based on the pre-test results, the questionnaire was revised and back-translated by language experts to ensure that the researcher was able to communicate the questions based on the desired information that the research meant to convey. (Back translation means that the questionnaire was translated from the original English version to the local dialect of the target respondents and then translated back to English by a second party or language expert.)

Both the personal interview and self-administered survey format were pre-tested. Based on observations during the pre-test and the results of the pre-test itself, the study eventually decided to use drop-off or self-administered survey in order to avoid certain biases.

2.1.2 Structure

The questionnaire (Annex A) provided a description of the commodity to be valued, the mechanism by which the good will be provided, and the method of payment. To determine if the scenario had been communicated successfully, each respondent was debriefed at the end of the questionnaire.

Some questions served to assess whether or not a respondent who says he/she will pay nothing for whale shark conservation is stating his/her true valuation or just stating a protest bid.

Structure of the Whale Shark Questionnaire

Part 1	To get people to start thinking about social or public priorities. This section includes questions on what public issues they think are currently being prioritized and what are being neglected.
Part 2	To establish attitudinal behavior about species conservation and to assess the respondent's familiarity with the existence, condition, threats, and importance that they place on the presence of whale sharks.
Part 3	To describe the conservation plan to protect the existence of whale sharks. This section contains the referendum or WTP question.
Part 4	Debriefing questions, including those designed to bring out the problems in the choice of payment vehicle, are included in the questionnaire.
Part 5	To determine the socioeconomic characteristics of the respondent.

2.1.3 Elicitation method

The study adopted the referendum method recommended by the NOAA panel because of its incentive properties. The single-bounded dichotomous choice with an open-ended follow-up question was used in the survey. Each respondent was asked whether he/she would vote (or pay), or be willing to donate, in favor of the proposition that, if approved by the majority, would provide for the conservation of whale sharks in Sorsogon. The elicitation question was presented in a take-it-or-leave-it format that imitates the choice facing an individual in a real market.

2.1.4 Payment design

The study opted to use the electricity bill as a vehicle for payment following recommendations from the series of FGDs conducted and the literature, which proposes that the payment vehicle must appear familiar and believable to respondents. The questionnaire asked the survey respondents about their willingness to pay on a monthly basis for a five-year time frame. Two split sample conditions were used in the payment design: one as a surcharge to the electricity bill and the other as voluntary contribution also through the electricity bill.

Cheap talk was incorporated in the hypothetical script to address certain potential protest issues like the absence of direct connection between electricity bill and whale shark conservation and why it is still the most efficient vehicle to use, concerns about the poor, and others. These aspects were intentionally added after a series of pre-tests to make sure that the respondents understand and accept the plausibility of scenario.

2.1.5 Price bid determination

For bid prices, three sets of prices were used in the pre-test given the following targets: 90 percent of the respondents would be willing to pay (WTP) given Price 1 (low price); 50 percent WTP given Price 2 (middle price); and 10 percent WTP given Price 3 (high price). For each price bid, there were approximately 40 samples. Price 1 was tested for low-income neighborhood, Price 2 in an average neighborhood, and Price 3 in an upper-middle income neighborhood (Whittington May 2005, personal correspondence). A mixed neighborhood survey site with all income levels was selected so that the pre-test interviews could be applied in just one site. Two follow-up pre-test surveys were done to re-calibrate the price bids. All in all, three waves of pre-test were conducted.

From the pre-test results, a set of the final bids was obtained and used in the actual survey. It comprised five bids from PHP 1, 5, 10, 50 to 100 (US\$ 0.02, 0.1, 0.2, 1, and 2).

2.1.6 Valuation question

The exact wording of the WTP question is as follows:

“Would you vote in favor of **Whale Shark Conservation Program**? The **Whale Shark** Conservation Program would mean that you and the other households in Sorsogon would pay a fixed monthly surcharge of PhP___ through the electricity bill. Remember that the surcharge of PhP___ will be collected every month for 5 (or 10) years. All the money that will be raised will go to the **Whale Shark Trust Fund to finance the Conservation Program** described above.”

☐ Yes (Go to Number 15)

☐ No (Go to Number 12)

2.1.7 Dealing with protest response

Various possible reasons (based on a series of FGDs) why respondents would not be willing to pay were included in the questionnaire as a debriefing question. Table 1 classifies the possible reasons as a valid ‘No’ or as a protest response. Two of the reasons -- “Majority of the poor will be affected” and “Only those from higher income groups should pay for this” -- can be either a valid ‘No’ or a protest response. They were classified under the latter category if the respondent was considered as poor according to his/her asset list reported in the survey. Respondents were allowed to choose a maximum of three reasons why they answered ‘No’ to the referendum question. If the sample chose at least one of the ‘protest No’ reasons, he/she is considered as a scenario rejecter under the condition that he/she also answered ‘No’ to the follow-up WTP open-ended question. Otherwise, if he/she indicated willingness to pay an amount other than the bid given in the follow-up WTP question, his/her response is considered as a valid ‘No.’

Table 1. Reasons for Unwillingness to Pay for a Whale Shark Conservation Program

Reason
Valid ‘No’ Response
I do not think conservation of whale sharks is worth doing
I cannot afford to pay for the program
I think that other species are more important than whale sharks
I prefer giving money to humanitarian cause instead
Only people who will directly benefit from whale shark conservation should pay for this
Only those from higher income groups should pay for this*
Majority of the poor will be affected*
Protest Response (Scenario Rejecters)
I do not believe that the money I will pay will actually be used for whale shark conservation
I do not like adding the amount to my electricity bill. Find other alternative means except

Reason
I do not like adding the amount to my electricity bill. Find other alternative means except electricity charge
Only those from higher income groups should pay for this*
Majority of the poor will be affected*
Note: *Protest bid or valid “no” if respondent is actually poor.

Giving the respondents the opportunity to choose three reasons, however, created a problem of interpreting scenario rejecters as it is possible that a sample would be rejected or censored for a low-ranked choice.

2.2 Survey Administration

2.2.1 Sampling procedure

The household survey was administered to Sorsogon residents who are considered household heads, e.g., husband, wife, or adult child who is already earning. The household head is defined as an adult member of the family who can decide on financial matters for the family. A multi-stage stratified sampling was conducted to obtain a representative sample.

Sample size

With an initial assumption of approximately 70 percent response rate, the survey targeted about 600 respondent-households in Sorsogon (Table 2). The household respondents or samples were divided in the following order:

Table 2. Number of Samples for the Whale Shark Survey

Split Sample	Mandatory Payment	Voluntary Contribution
No. of actual samples	60 samples/bid	60 samples/bid
No. of bid prices	5	5
Total	300	300
Target (Usable Questionnaires)	200	200
Pilot Testing	40 samples/bid x 3 bids = 120	

Sample selection procedure

This procedure involves constructing a sampling frame and selecting from the sampling frame in a way such that the probability of each person being selected is known.

Four municipalities (a political unit, next to provincial level) out of the total 15 municipalities in Sorsogon were selected. To proportionately distribute the 600 questionnaires/samples to these four municipalities, a simple ratio and proportion step was observed.

The four municipalities were then further sub-divided into *barangay* clusters. A *barangay* is the basic political unit in the Philippines consisting of about 100 or more households clustered in a certain locality. For each of the municipalities, *barangays* were classified into four groups by ranking their respective populations in ascending order from the least populous to the most populous. Finally, for the random selection of respondents within the randomly selected *barangays*, a systematic sampling with a random start was followed.

Ten sets of questionnaires were divided between voluntary and mandatory payment mode, each with five price bid levels. Given 600 target samples, the questionnaires were randomly distributed to randomly selected respondents.

2.2.2 Field protocol

The household survey was implemented within three weeks, beginning 10 September 2005 in Sorsogon Province.

Drop off protocols

This CV survey was administered by dropping off the questionnaires to randomly selected households and collecting them after 1-3 days, depending on the commitment made by the respondent. If after two follow-ups the questionnaire had not been attended to yet by the household head, the enumerator retrieved the unanswered questionnaire and returned it to the survey supervisor for distribution to other randomly selected respondents.

Before leaving the house of the respondent who answered the survey, the enumerator had to assess the filled-up questionnaire to make sure that the respondent did not miss any question. The enumerator was also instructed to conduct a follow-up personal interview for items in the questionnaire that were not answered. After checking the questionnaire, a debriefing statement was given to the respondent, thanking him/her for his/her participation and informing him/her that there were split samples, so that he/she would not be surprised if he/she found out that a neighbor was asked a different price bid.

2.3 Model Estimation Procedure

2.3.1 Parametric

Mean and median WTPs with the dichotomous choice format are traditionally calculated from the coefficients relating the WTP responses against a constant and the bid (BID). An additional vector of socioeconomic variables (X) can also be factored into the model. The coefficients are typically estimated based on a logistic function:

$$P_i(\text{yes}) = F_{\varepsilon}(\Delta V) = \frac{1}{1 + \exp(-\Delta V)} = \frac{1}{1 + \exp[-(\alpha + \beta_1 \text{BID} + X' \beta_2)]}$$

where α and β are coefficients to be estimated and BID is the amount the respondent was asked to pay.

The logit model above is then estimated using the maximum likelihood estimation method, which is the most common technique for estimating the logit model (Lee 1997). The log-likelihood function is

$$(2) \quad \log L = \sum_{k=1}^N I_k \ln F_{\varepsilon}(\Delta V_k) + (1 - I_k) \ln(1 - F_{\varepsilon}(\Delta V_k))$$

where I_k is an indicator variable for observation k . If the answer is *yes*, $I_k=1$; otherwise, $I_k=0$.

Finally, the mean WTP can be determined using the formula:

$$\text{Mean WTP} = -\frac{\alpha}{\beta}$$

where α is the covariate parameters and β is the parameter of BID. In this case, median WTP will be equal to mean WTP.

2.3.2 Non-parametric

Given the single-bounded, dichotomous choice question with a series of positive price bids, denoted as B_j , $j = 1, 2, \dots, j$, respondents were presented with one of these bid prices and they indicated whether or not they were willing to pay such amount. It is assumed that there exists a bid level at a value of zero wherein, if presented to a sample, all of the respondents would be willing to pay this amount.

Point estimates of the survivor function can only be calculated at each of the J bid levels. The following notations are used for estimating the point estimates:

- If the number of households in the sample is denoted as N , then the sub-sample facing bid level B_j can be denoted N_j .

- The households replying ‘Yes’ WTP are those respondents that have a higher WTP than the B_j amount. This amount is denoted as n_j .

And considering the assumption that everyone is willing to pay a non-negative amount for the non-market environmental good, it can therefore be set to $\hat{S}(B_0) = 1$.

From the equation, a point estimate of the survivor function at each bid level can be generated by dividing the number of respondents who answered ‘Yes’ to that bid level by the number of respondents in that sub-sample.

$$\hat{S}(B_j) = \frac{n_j}{N_j} \quad j = 0 \text{ to } J$$

In cases wherein the survivor function is not a non-increasing function, it will not generate a valid survivor function. To correct such problem, a technique known as the pooled adjacent violators algorithm can be employed. The technique includes pooling data for two adjacent bid levels if the estimate of the survivor function for the higher bid level is greater than that for the lower bid.

$$\hat{S}(B_j) = \hat{S}(B_{j+1}) = \frac{n_j + n_{j+1}}{N_j + N_{j+1}}$$

Mean WTP is then calculated using:

$$MeanWTP = \sum_{j=1}^J \hat{S}(B_j) [B_j - B_{j-1}]$$

Reference: Bateman et al. 2002

3.0 EMPIRICAL RESULTS

3.1 Data

Based on the 2000 Family Income and Expenditures Survey (FIES) of the National Statistics Office (NSO), Sorsogon had an average monthly household income of PhP 6,300 (approximately the same as that obtained in the survey) and an average monthly household expenditure of PhP 5,800 (Table 3). Also based on NSO records, food accounted for the bulk (53%) of the total family expenditure.

Table 3. Demographic Information

Characteristic	Value
Number of Households	
Sorsogon Province	125,191
Sample Observations	588
Mandatory Payment Samples	293
Voluntary Payment Samples	295
Sample Observation Characteristics	
Age (average)	42
Gender: Male (% to total)	43.2
Civil Status: Married (% to total)	77.72
Educational Attainment (no. of years)	10.16
Ave. Monthly Household Income (PhP)	6,052 (121)
Sorsogon Province HH Economic Characteristics^{1/}	
Ave. Monthly Household Income in PhP (\$)	6,300 (126)
Ave. Monthly Household Expenditure in PhP (\$)	5,800 (116)
Ave. Monthly Household Savings in PhP (\$)	500 (10)

Note: 1/ Reference: Sorsogon Physical Framework Plan

While whale shark conservation is not a household essential, it is a charismatic good that could potentially be subject to a warm glow response and even ‘yea saying’. As such, aside from using drop-off as the survey method and including budget reminder in the cheap talk, the study only targeted respondents who were considered as household financial decision-makers, banking on the assumption that they would be more objective with regards their respective households’ financial standing. This explains why the majority of respondents were married, approximately half of them were male, and all of them were adults mostly currently employed (Table 3).

Using the drop-off survey method, a response rate of 98 percent was achieved; out of the 600 questionnaires distributed, 588 usable questionnaires were retrieved. For further consideration of potential biases, the WTP responses of the 588 observations were subjected to certainty consideration. Based on the study of Champ and Bishop (2001), when less certain WTP respondents were treated as if they had responded negatively, a statistically significant hypothetical bias disappeared. Uncertainty about the answer provided to a valuation question implies uncertainty about the tradeoff between the amenity in question and the monetary good, and therefore needs to be addressed prior to welfare estimation.

Incorporating uncertainty responses in the actual analysis requires that the positive WTP responses of those who answered ‘Not very sure’ or ‘Not sure at all’ to the WTP certainty question are changed to a negative response to the referendum question.

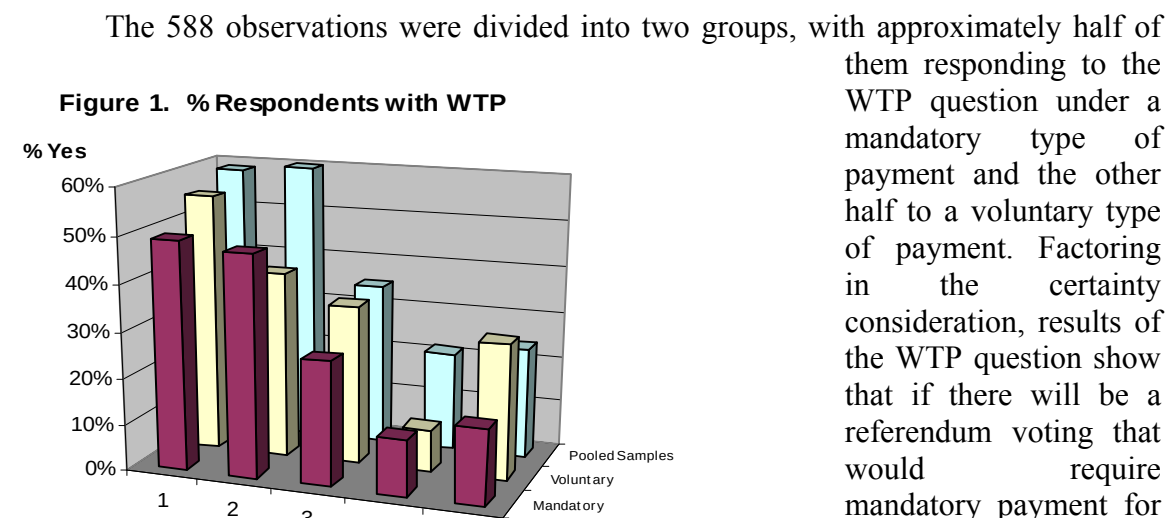
Results show that the uncertainty is not really considerable, the highest change

“How certain are you that you would vote “YES”/”NO” in Question Number 11 if such an election whether to implement Whale Shark Conservation Program were to really take place?”	
Completely sure/Definitely vote YES/NO	
Somewhat sure	
Not very sure	
Not sure at all	

being in the initial bid price (PhP 1), with 4 percent of positive WTP converted to negative WTP (i.e., from 50 to 46 percent) (Table 4). All the other bids registered a 1-2 percent decline in Yes WTP answers. The minimal certainty adjustment signifies a good sign of the respondents’ understanding about the hypothetical scenario.

Table 4. Distribution of WTP Responses

Bid Price PhP (\$)	Total Number of Observations	YES Response (%)	
		Uncensored	Adjusted to Certainty
1 (0.02)	118	50	46
5 (0.10)	119	39	38
10 (0.20)	121	33	32
50 (1.00)	115	17	15
100 (2.00)	115	16	15



the implementation of whale shark conservation program, the referendum in Sorsogon would not probably pass. As Figure 1 shows, the lowest bid used in the survey was already PHP 1 (\$0.02) and yet only a little over 40 percent of the observations in the mandatory split sample survey expressed a positive WTP on this bid level. To use a bid lower than this level would no longer be taken seriously by the respondents as it would appear ridiculously low or without any real economic value. Likewise, only a borderline majority would agree even to a voluntary type of payment for conservation.

3.2 Logistic Regression

3.2.1 Models and hypothesized signs

Table 5 outlines the hypothesized direction of effects of explanatory variables on WTP based on theoretical expectations and empirical regularities. The variables are categorized into three: Attitude and Awareness, Program Design and Socioeconomic Characteristics. Familiarity with whale sharks, particularly the experience of seeing a live one (SEEN), and knowledge of whale sharks (SCORE1) are expected to affect WTP positively. The perceived threat to whale sharks (THREAT) and people's trust and belief regarding the current situation (BELIEF) are also expected to affect WTP positively.

The bid price (WTPAMT) would negatively affect WTP, implying that as prices increase, the demand for the good, or in this case willingness to buy, decreases. Various socioeconomic indicators are also predicted to influence WTP in different directions. Age (AGE), gender (SEX), and civil status (STATUS) have no predetermined sign because both younger and older residents, male or female, married or single could likely prefer such environmental good. Educational attainment (EDUCATTAIN), membership in environmental organizations (ENVTORG), and monthly household income (REVINC) are expected to affect WTP positively also.

An initial multivariate logit regression analysis was done using Stata to identify the factors associated with responses to the WTP question. Preliminary analysis reveals that some of the independent variables used are either not significant or are highly correlated with other variables. Hence, these variables were excluded in the succeeding logit regression analyses.

Several data sets were generated: one for the raw (uncensored) data/sample responses, another for protest response-adjusted data; set and another for certainty-adjusted WTP responses. Overall, three models were considered in the logit/econometric analysis using selected covariate specifications related to socioeconomic characteristics.

Table 5. Hypothesized Direction of Effects of Explanatory Variables on WTP

Significant Variable	Description	Expected Direction/ Sign
Attitude and Awareness		
Seen	Seen a live whale shark	+
Score1	Knowledge score	+
Threat	Threat to whale sharks	+
Believe	Belief in the description of the situation described	+
Program Design		
Payveh	Payment design (mandatory and voluntary)	+/-
Bid	Bid price	-
Elctrcbill	Liked the proposal to collect people's contribution as surcharge on their electricity	+
Socio-Demographics		
Age	Age of the respondent	+/-
Sex	Gender of the respondent	+/-
Status	Civil status of the respondent	+/-
Educattain	Educational attainment in years	+
Tothh	Total number of household members	+/-
Envrtorg	Membership in environmental organization	+
Revinc	Total monthly income of the household	+

These three models considered two alternative approaches in dealing with protest votes: (a) consider the ‘protest No’ responses as legitimate zero valuation (Model 1) and (b) censor the protest votes (Model 2). Supporting the former approach, Halstead, Luloff and Stevens (1992) criticized that the censoring of protest bids may aggregate WTP estimates in a manner that is not easily predicted. On the other hand, Lindsey (1994) argued that when the CV survey is designed as a referendum, it is less concerned whether a zero response represents a true valuation and is more focused on whether or not it reflects intended behavior. The referendum model is less stringent in terms of the classification of protest because protest reasons are mostly legitimate influences upon actual behavior. A parallel argument was provided by the study of Mc Guirk et al. (1984), which states that protest bids “should be considered legitimate WTP bids as respondents are essentially valuing a proposed policy, not just a commodity.”

Model 3 deals with certainty responses wherein the answers of respondents who are not certain with their positive WTP response were converted to a negative answer to the valuation question. Loomis and Ekstrand (1998), in a study of the Mexican spotted

owl, recognized that survey respondents may be uncertain about their values for threatened and endangered species. They used a follow-up question asking how certain respondents are about their 'yes' and 'no' answers. The study reported that incorporating uncertainty tends to lower WTP estimates although such adjustments do not improve the estimates' efficiency.

3.2.2 Estimates of the models

Overall, the behavior or direction and significance of the variable in the various models did not register any significant change, although there was an improvement of the overall performance of the model or the Pseudo R2 in the Adjusted to Protest model (Model 2) (Table 6).

Table 6. Statistics of Important Variables Included in the Preliminary Logit Analysis

Variable	(Model 1) Uncensored	(Model 2) Adjusted to Protest	(Model 3) Adjusted to Certainty
Bid	-0.17*** (0.00)	-0.02*** (0.00)	-0.17*** (0.00)
Age	0.00 (0.00)	0.01 (0.01)	0.01 (0.01)
Sex	0.06 (0.19)	-0.06 (0.26)	0.11 (0.19)
Status	-0.38* (0.23)	-0.24 (0.32)	-0.39* (0.23)
Educattain	-0.05 (0.03)	0.02 (0.05)	-0.02 (0.03)
TotHH	0.04 (0.04)	0.10** (0.05)	0.04 (0.04)
Revinc	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Envtorg	0.07 (0.26)	0.18 (0.41)	0.15 (0.27)
Constant	-0.32 (0.58)	-1.21 (0.82)	-0.92 (0.59)
Pseudo R2	0.07	0.22	0.07

Notes: Standard error values in between parenthesis.

*** at 1% level of significance

** at 5% level of significance

* at 10% level of significance

The dependent WTP variable (yes = 1 and no = 0) is regressed against a *Constant* term, price bids (Bid), income (Revinc), household size (Tothh), years of schooling (Educatt), age (Age), gender (Sex), civil status (Status), and membership to environmental organization (Envorg). The majority of variables had positive coefficients, however, only Revinc and Bid variables turned out to be highly significant.

Consistent with *a priori* economic expectations, the Income variable is significant at 0.01 level of significance and positively associated with a higher WTP for whale shark conservation. The Bid variable also turned out highly significant in all models (as expected) with a negative influence on the probability of the respondent saying ‘yes’ to the WTP question. This means that the larger the bid value presented to the respondent, the less willing the respondent would be to pay for whale shark conservation.

3.2.3 Effect of payment design

The survey samples were disaggregated in terms of payment vehicle. Of the total 600 respondents, 588 were deemed valid and included in the analysis. A total of 293 respondents were asked about their willingness with regards mandatory payment for the conservation of whale sharks while 295 respondents were asked regarding voluntary payments. The study applied hypothesis testing using logistic regression to assess payment design (Mandatory vs. Voluntary) effect. If the P-value for the dummy variable of payment design (Payveh) is less than the conventional 0.05, it will result in the non-rejection of the H_0 . It would then imply that there is no difference between pooling the data or treating the data by payment design.

$$H_0: E(WTP_{\text{mandatory}}) = E(WTP_{\text{voluntary}})$$

$$H_a: E(WTP_{\text{mandatory}}) \neq E(WTP_{\text{voluntary}})$$

To start off, the socioeconomic characteristics (Tothh, Age, Educatt and Revinc variables) of the respondents were compared. The T-test results show no statistical difference on the characteristics of the respondents for the payment design group comparison.

The regression results (Table 7) show that some important variables such as Bid and Revinc were highly significant and had the expected signs but the payment design was not a significant factor affecting the respondents’ WTP decision. The respondents’ indifference to payment design justifies the pooling of samples in the regression analyses shown earlier.

Table 7. Logit Regression Results for Payment Design Effect

Variable	Coefficient	Std Error
Bid	-0.02 ***	0.00
Age	0.01	0.01
Sex	0.11	0.19
Status	-0.39 *	0.23
Educattain	-0.02	0.03
Tothh	0.04	0.04
Revinc	0.00 ***	0.00
Envtorg	0.15	0.27
Payveh	0.03	0.19

Constant -0.94 0.60

Pseudo R² 0.08

Notes:

*** at 1% level of significance

** at 5% level of significance

* at 10% level of significance

3.3 WTP Estimates

Parametric (univariate and multivariate models) and non-parametric welfare estimation results were compared to assess the consistency and behavior of survey data and how these might affect the WTP estimates. Similar to the multivariate models, logit equations were generated for the univariate models. The parametric results for the logit univariate models were consistent in that the bid coefficients were negative and significant.

Table 8 shows that median and mean WTP have practically zero values for both univariate and multivariate estimates, except in Model 2, or Adjusted to Protest model since a lot of negative WTP samples were dropped. The non-parametric estimate generated a positive but relative low mean WTP value ranging from PhP 17 (\$0.34) to PhP 35 (\$0.70) per household per month.

Table 8. Parametric and Non-parametric Mean WTP Estimates in PhP and (\$)/HH per month

	(Model 1) Uncensored	(Model 2) Adjusted to Protest	(Model 3) Adjusted to Certainty
Multivariate Model	0	46 (0.92)	0
Univariate Model	0	38 (0.76)	0
Non-parametric Estimate	18 (0.36)	35 (0.70)	17 (0.34)

The results are not implausible as they are found consistent with the socioeconomic characteristics of the samples, particularly the income factor. The estimate is consistent with the survey results of a very low positive WTP response even to the lowest bid, signifying a possible failure for a referendum for implementing a whale shark conservation program and also only a borderline majority agreeable to a voluntary type of payment.

3.4 Motivation to the Payment Question

3.4.1 Perception on environmental issues and familiarity with whale sharks

The majority of respondents (82%) believed that the environment is not properly being cared for. The three main environment-related concerns were solid wastes,

deforestation, and water pollution. But though they generally believed environment is neglected, still the environment does not rank as a top priority among the other national concerns (Table 9).

Table 9. Respondents' Perception on Environment and Natural Resources Issues

Issue	% of Observations
National Priorities	
Economic problems (Ranks 1 st)	43.71
Poverty (Ranks 2 nd)	29.25
Environment (Bottom rank among other issues)	0.68
Environment not cared for	81.63
3 Most Important Environmental Problems	
Solid wastes	31.29
Deforestation	26.87
Water pollution	11.73
Total Observations	588

Regarding familiarity with whale sharks, although 70 percent of the respondents had not seen a live whale shark, the majority of them had a good level of knowledge of the said species. As Table 10 shows, most respondents got high scores in the four general questions pertaining to whale sharks; almost half of them got the perfect score.

Table 10. Assessment of Importance of Species and Knowledge of Whale Sharks

Indicator	% of Observations
Seen a Live Whale Shark	25.34
Knowledge of Whale Sharks	
Whale shark is the largest fish in the world	74.32

3.4.2 Conservation Program's perceived effectiveness and acceptability

Regarding details provided in the Conservation program, the majority (81.12%) of respondents recognized that there are real threats to the existence of whale sharks (Table 11). Results also showed that respondents, who believe in the effectiveness of the conservation program, are more inclined to give a positive WTP response.

Table 11. Perceptions on the Proposed Conservation Program

Group	% of 'Believes/Accepts' Observations				
	Threats	Status	Program Effectiveness	Electricity bill surcharge	Total Respondents
All Observations	81.12	90.65	67.69	32.65	588
Respondents with WTP	94.05	97.30	92.43	80.00	185
Respondents with no WTP	75.19	87.59	56.33	10.92	403

On the proposal to collect contribution as surcharge of the electricity bill, only a few respondents (32.62%) agreed to such a scheme (Table 10). Most respondents who gave a negative WTP response consistently answered that they do not like the electricity bill surcharge. At first glance, this may appear to be a valid ground for considering a negative WTP response on the basis of Program component (payment vehicle) rejection as a clear case of protest response. But a closer probing of responses to the debriefing questions revealed that the primary reason for non-acceptance of the electricity bill surcharge proposal was the respondents' fear of the electricity bill increasing with the whale shark conservation fee. This information, reinforced by the economic status of households in Sorsogon, bolsters the assumption that these respondents are merely expressing that they could not afford further strain on their finances.

3.4.3 Willingness to Support the Conservation Program

Having established the respondents' attitude toward environmental issues and familiarity with whale sharks, other motivation questions were asked to look at the respondents' potential commitment to support the conservation program. More than half

of the respondents (60.71%) strongly agreed that everyone is responsible for ensuring that plants and animals, as they are known today, will exist for mankind in the future. This suggests that the respondents hold a perceived bequest value. Likewise, some strongly agreed on their existence value, saying that the endangered species are important even if they don't get to see them. But though they agreed in principle on the importance of preserving endangered species, when it comes to actual cash outlay to finance the cause, only a few (9.69%) strongly agreed to give cash donations and fewer still (5.27%) agreed to increase taxes in order to pay for endangered species conservation (Table 12).

Table 12. Respondents' Opinions on Endangered Species Issues

Issue	% of Observations
It is everyone's duty to ensure that plants and animals as we know them today will exist for mankind in the future	60.71
Endangered species are important even if I don't get to see them	29.08
Citizens should contribute to endangered species conservation by making cash donations to this cause	9.69
Government should raise taxes to pay for more endangered species protection	5.27
Total Respondents	588

4.0 IMPLICATIONS ON WHALE SHARK CONSERVATION

The survey results show that the people are aware and concerned about environmental issues, including the precarious condition of whale sharks in Sorsogon. They are not, however, able or willing to pay for the implementation of the Conservation Program because poverty, employment, and other economic concerns take precedence over environmental issues. This result confirms the ubiquitous notion about developing countries and environmental improvements. Solow (1993) summarized the problem in the following way: "The poor countries seem to have a choice between cooperating in the degradation of their own environment or acquiescing in their own poverty." Choe et al. (1996) pointed out that the policy message for developing countries seems to be to "wait until your economy has grown more before spending much effort trying to take care of the environment."

The cost of conservation is not cheap. Based on the experience of other conservation programs, roughly PhP 7.38 million (\$148,000) is needed to enhance the existing conservation project of Donsol's local government and implement a more comprehensive whale shark conservation program in Sorsogon (details provided in Annex B). This estimate does not yet include the yearly operation and maintenance to keep the proposed comprehensive program going. What the study's results are saying is that the Philippines cannot afford to pay for this cost (Table 13). Wildlife conservation efforts that depend on public funds often face major systemic barriers hampering effective conservation. There is chronic underfunding of wildlife conservation efforts in

developing countries and this is a clear signal that the international community has to do something if it wishes to conserve whale sharks. Whale sharks are migratory in nature and the scale and urgency of the response toward their conservation require a significant amount of resources and international collaborative partnerships.

Table 13. Approximate Benefit and Cost Values Related to Whale Shark Conservation in Sorsogon

Benefit and Cost	Value in '000 PhP ('000 US\$)
Potential Revenue of the Conservation Program	0
Use (Non-Consumptive) Value of Whale Sharks	35,000 (700) per year ^{1/}
Program Cost	7,375 (148) ^{2/}

Notes:

1/ Manila Times, August 2006.

2/ Excluding yearly operation and maintenance cost and the potential foregone use value.

Aside from the infinite ecological or biological value of whale sharks, the Philippines would gain significant economic benefits if whale sharks are protected. Eco-tourism through whale shark watching is continually gaining ground as a strong economic force in the region. In 1998, Sorsogon had only about 900 visitors; in recent years, the area saw an average of 8,000 tourists every whale shark season, a third of which are foreigners (Adrao April 14, 2005, *personal correspondence*). This industry creates about 1,000 seasonal jobs. In 2005, the World Wildlife Fund (WWF) reported that whale shark watching contributed at least PhP 35 million to the country's economy during the whale shark season from February to May. This income includes revenues from additional jobs created and increased income of the food, transportation, and hotel sectors. Such income is vital and serves as a lifeline to Sorsogon and nearby areas.

Aside from tapping the support of the international community through bilateral and multilateral cooperation, the Philippine government should explore other conservation financing mechanisms. A WWF-funded study by Koteen (2004) enumerates multilateral agencies that provide species conservation funding. The list includes the Global Environment Facility (GEF), the United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), and the World Bank. Some multilateral agencies, such as regional development banks, provide loans to governments rather than grants or donations. Regional development banks are also beginning to collaborate with the GEF to leverage additional resources for species conservation. Koteen's study also provides a menu of schemes that governments can use to stabilize and even increase allocations for species conservation such as earmarking revenues collected through various fiscal instruments (e.g., government bonds, lotteries, premium-priced motor vehicle license plates, wildlife stamps, and tax incentives) (Table 14).

Table 14. Menu of Options for Financing Conservation

Financing Mechanism	Source of Revenue
Government Revenue Allocations	
Taxes and bonds earmarked for conservation	Taxpayers, investors
Real estate and development taxes	Property owners, property developers
Lottery revenues	Gamblers
Premium-priced motor vehicle license plates	Vehicle owners
Wildlife stamps	Postal customers, hunters, fishers
Economic instruments to stimulate environmental investment	Investors
Debt relief	Donors, governments, NGOs
Grants, Donations, and Loans	
Bilateral and multilateral agencies	Donor agencies
Foundations	Individuals, corporations
Conservation trust funds	Multi-source
Nongovernmental organizations	NGO members and supporters
Private sector	Private companies

Source: Koteen 2004.

It is interesting to note that after an elaborate preparation and implementation of the survey and analysis of the CV data, results show zero or close to zero welfare values. But clearly, the whole exercise had achieved what it set out to do. The message is clear that with meager available resources, people in a developing country like the Philippines are not willing to pay for the conservation of wildlife. The government, as it stands now, has limited budget to provide for the basic services for its citizens, hence, funding for species conservation is expectedly low. Financing of conservation programs, therefore, necessitates assistance from the international community. Be that as it may, there is also a lot at stake for the Philippines in ensuring the continuous existence of whale sharks, and the country will do well to proactively explore alternative financing options for conservation.

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Annex A. English Version of the Questionnaire (mandatory version)

CONSERVATION VALUE OF WHALE SHARKS: SURVEY OF SORSOGON RESIDENTS

Introduction:

Good day! This is a survey sponsored by the Economy Environment Program for Southeast Asia (EEPSEA). The purpose of this survey is to find out how people in SORSOGON think about a conservation program to protect whale sharks in Donsol, Sorsogon. A similar survey is being done in three other countries: Thailand, Vietnam and China, but each of this country looks into a different endangered species. Here in the Philippines, we are focusing our study on whale sharks in Sorsogon.

Your household was randomly chosen to be part of the study. It will probably take you about 30 minutes to complete the questionnaire. I would like to assure you that whatever information you will reveal in the survey form will only be used for this research. Please take note that the information presented in the questionnaire below regarding the Conservation Program for whale shark is not yet in existence. The Program is presented, for the purpose of this survey, so that we can get your opinion on this matter.

If anything is unclear, please make note of any questions you might have. We will try to answer your questions when we come back to pick up the questionnaire.

There is no right or wrong answer to the questions. We only want to find out your honest opinion. We would like to request that only the <male/female> *(to be identified by the enumerator)* household head (husband/wife/ employed sons or daughters) should answer this questionnaire. However, you may consult with other members of your household when answering the questionnaire if you wish. We also request that you NOT discuss the questions with your neighbors or other people outside your immediate household before you provide your answers.

If this questionnaire is fully accomplished, you will qualify for a raffle, which will give you a chance to win any **ONE** of the following prizes: (Please check the prize of your choice – check only ONE)

- ☐ two-year subscription of National Geographic magazine
- ☐ All expenses paid tour for Donsol whale shark watching for two (2)
- ☐ Grocery coupon worth ₱ 10,000

This raffle will be drawn on December 15 at Sorsogon Provincial Capitol. We will call you in case you will win.

Name of the respondent (optional)	
Complete Address	
Phone Number	
Date form was left	
Date form was picked up	
Interviewer/Facilitator	

SECTION 1: Problems Facing the Country

1. In your opinion what are the **THREE BIGGEST PROBLEMS** facing our country today? On the right column, place **1** if you think it is the biggest problem, **2** if it is the second biggest, **3** if it is the third biggest problem.

Problem	Rank (Choose which is 1, 2 & 3)
a. Economic Problems (e.g., inflation)	
b. Poverty	
c. Education	
d. Health	
e. Crime, violence, inequality	
f. Government and Governance	
g. Infrastructure (e.g. roads, water)	
h. Environment	
i. Terrorism	
j. Relations with other countries	
k. Others:	

2. Do you think our environment and natural resources are properly taken care of? Please tick your choice.

☐

Yes

☐

No

3. What do you think are the **THREE (3) MOST** important issues related to nature and human impact on the natural environment? On the right column, place **1** if you think it is the most important problem, **2** if it is the second important, **3** for the third most important. (Choose only 3)

Natural Resource & Environmental Problem	Rank (Choose which is 1, 2 & 3)
Air pollution	
Water pollution	
Solid waste	
Increasing number of endangered species	
Deforestation	
Traffic problems	
Flooding due to soil erosion	
Enhanced greenhouse effect (reason why heat cannot exit earth)	
Destruction of coral reefs (this is the spawning and feeding area for fish)	
Others, pls. specify	

SECTION 2: ATTITUDE TOWARD CONSERVATION & KNOWLEDGE OF WHALE SHARKS

4. In terms of endangered species protection, which species do you believe is more deserving of protection? On the right column, place **1** if you think it is the **most important species**, **2** if it is the second important, **3** for the third most important species.

Species		Rank	Species		Rank
A		_____	D		_____
	Dugong			Whale Shark	
B		_____	E		_____
	Rhino			Spoonbill	
C		_____	F		_____
	Marine Turtle			Eagle	

5. Please read the following statements and tell us your opinion by choosing a grade between Strongly agree/Agree/ Indifferent/Disagree and Strongly disagree for all the issues enumerated below. Please remember that there is no right or wrong answer to these questions. Please check (✓) the column to enter your answer.

Note: Endangered species are plants and animals considered to be facing a high risk of extinction.

STATEMENT TO AGREE/DISAGREE ON...	Strongly Agree	Agree	Indifferent/ Neutral	Disagree	Strongly Disagree
The government should raise more funds to deal with environmental programs in this country.					
There are more important environmental concerns than endangered species conservation.					
Poaching of wildlife species should be punishable by law.					

by law.					
It is everyone's duty to ensure that plants and animals as we know them today will exist for mankind in the future.					
Citizens should contribute to endangered species conservation by making cash donations to this cause.					
Endangered species are important even if I don't get to see them.					
The government should raise taxes to pay for more endangered species protection					
The government should first invest in helping people before it spends money on endangered species protection.					
Households who earn more income should pay higher taxes in order to pay for endangered species conservation.					
Endangered species conservation should not be a high priority concern of the government.					

The following questions are about whale sharks.

6. Have you ever seen a live whale shark?

Yes	
No	

Please tell me whether the following statements are "True" or "False" – or just indicate "Don't Know" if you are unsure of the answer.

7. The whale shark is the largest fish in the world.

True	
False	
Don't Know	

8. Whale sharks do not stay in one place. They migrate to different parts of the ocean.

True	
False	
Don't Know	

9. The congregation of whale shark in Donsol is claimed to be the largest in the world.

True	
False	
Don't Know	

10. The whale sharks have slow reproductive rates and the continuing presence of one or a combination of

True	
False	

these threats could easily wipe out the entire population	Don't Know	
---	------------	--

Important: Please read the brochure attached to this survey form where you can find the details about the Whale Shark Conservation Program before you proceed with this survey. The succeeding part of the survey would not make sense to you and it would be very difficult to answer the following survey questions without reading the brochure first.

You can tear off the brochure from this survey form and keep it for your own use after you've read it thoroughly.

SECTION 3: A Conservation Plan for the Protection of Whale Shark

Implementing the many good ideas in the Conservation Program would require a lot of money. So far, there is no clear agenda where to get funds to carry out the activities in the Conservation Program.

The local government of Donsol regularly earmarks a portion of its budget for whale shark protection. However, this is not enough to cover the expenses for the implementation of the Conservation Program. One possible source of fund is to set up a **Whale Shark Trust Fund** wherein residents of Sorsogon will give an amount to the Fund by way of the **Whale Shark Conservation Fee**. However, setting up a Whale Shark Conservation Fund is not easy. It takes considerable effort.

We are undertaking this survey to find out if enough people from Sorsogon would be willing to pay a share to the fund to make it worthwhile. One proposal for fund collection is that people would give to the Trust Fund by paying a surcharge to their SORECO electricity bill which would serve as their part for setting up Whale Shark Trust Fund. The amount of the surcharge would be fixed for all households (meaning it would not vary by the level of household's electricity consumption and it would not vary in time). We know that there is not such a close connection between whale sharks and electricity bill. But after a series of consultations, we found out that it is only by this way would it be possible to collect payments from almost all households so that the responsibility for protecting whale

sharks in Donsol will not just fall on select people or sectors. Given this situation, we are assuming that SORECO would be willing to collect the surcharge and **ALL** the money would be transferred to the Trust Fund and will only be used for Butanding Conservation Program. Naturally, the very poor households in our society who do not have electricity connection will not be required to pay anything for the conservation.

Let us suppose that there would first be *voting*. The purpose of this referendum would be to see how many people in Sorsogon would be willing to support a plan *to impose a monthly fixed surcharge on everyone's electricity bill*. Suppose that the SORECO bill surcharge would be adopted to support the *Whale Shark Conservation Program* only if greater than 50% of the people would vote positively to this plan.

Assume that this fixed surcharge would be added to your SORECO **bill every month for the next five (5) years**. **All funds** raised through the SORECO surcharge **would go to the Whale Shark Trust Fund** that will be **managed and administered** by the **Whale Shark Conservation Management Board**, a multi-sectoral entity. In other words, SORECO will not have any role in managing the funds, it will only collect and will automatically transmit the money to the Trust Fund every month.

The reason that the surcharge would end after five (5) years is that it is expected that this would raise enough money to establish a trust fund. The income from this trust fund could be used by the *Whale Shark Conservation Program* far into the future.

PLEASE REMEMBER: The **survey** you are participating in today **is only to find out your opinion** about this matter. We are simply interested in finding out how you would vote **IF** an actual referendum would take place.

Past studies have found that many people say that they agree with a program like this when they are asked their opinion in a survey, but they actually vote 'No' when the actual voting takes place. In other words, respondents have a tendency to say things in the survey that they do not really mean to do. Researchers are not sure why people do this. It may be because it feels good to say 'yes' in a survey when people do not actually have to pay. Or it may be to please the person dropping off the survey.

We are requesting that you would answer based on how you would really vote if there will be an actual poll. Please vote positively in this survey only if you are really willing to pay a surcharge in your electricity bill for Whale Shark Conservation Program.

11. Would you vote in favor of **Whale Shark Conservation Program**?

The **Whale Shark** Conservation Program would mean that you and the other households in Sorsogon would pay a fixed monthly surcharge of PhP___ through the electricity bill. Remember that the surcharge of PhP___ will be collected every month for 5 (or 10) years. All the money that will be raised will go to the **Whale Shark Trust Fund to finance the Conservation Program** described above.

☐ Yes (Go to Number 15)

☐ No (Go to Number 12)

12. If you voted 'NO', what are the reasons why you did not vote for the program? Please tick the most appropriate answers (limit your answers to 3).

☐	I do not think the conservation of Whale Sharks is worth doing
☐	I do not believe that the money I will pay will actually be used for Whale Shark Conservation.
☐	I think that other species are more important than Whale Sharks.
☐	I do not like adding the amount to my electricity bill. Find other alternative means except electricity surcharge.
☐	A lot of poor people will be affected
☐	I prefer giving money to humanitarian cause instead
☐	I do not earn enough money that can pay for the Program
☐	Only people who directly benefit from Whale Shark conservation should pay for this
☐	Only those from higher income groups should pay for this.
☐	Others (pls. specify) _____

13. IF you voted 'NO' to the proposal of setting up the Whale Shark Conservation Program given that this will cost your household a monthly payment of <bid> over 5 years, is there any amount that you would be willing to give to support the Whale Shark Conservation Program?

☐ Yes (Go to Number 14) ☐ No (Go to Number 16)

14. If YES, what amount would this be? <Currency> _____/month - - - (Go to Number 15)

15. If you voted 'Yes', what was it about the Conservation program that convinced you to vote positively for it? Check the most appropriate answers (limit your answers to 3).

☐	The whale shark is a special animal and should be protected
☐	It is high time that people in Sorsogon do something concrete about protecting the whale shark in Donsol
☐	This initiative can lead to more protection efforts for other endangered species in the country.
☐	Other, please specify _____

16. Before you began answering this questionnaire, did you think there were real threats to whale sharks as described? Please check your answer.

☐ Yes

☐ No

17. Please rank the following according to how effective you think they would be in encouraging people to contribute to a Whale Shark Conservation Fund. **Write number 1 in the box** for the method you think is **most effective**, and then **2, 3, 4, etc. for the methods you think are less effective**.

	Rank (1, 2 and 3)
Provide more information to the public about the problems of Whale Shark	
Provide more information about the charitable organizations and their activities so people know the channels how to help	
Create more transparency and accountability about how to help	
Rely on celebrities to promote and disseminate information about the importance of protecting whale sharks	
Make it convenient for people to donate	
Get organizations to publicize their activities	
Others, specify_____	

You're almost finished answering this survey. At this point, we'd like to give you a chance to think back and further evaluate your answer to the referendum question I asked you earlier regarding the Conservation Plan to protect whale sharks.

18. How certain are you that you would vote 'YES'/'NO' in Question Number 11 if such an election whether to implement Whale Shark Conservation Program were to really take place?

Completely sure/Definitely vote YES/NO	
Somewhat sure	
Not very sure	
Not sure at all	

19. When you decided on your vote, did you believe the information provided in this survey with regards to the status of the whale sharks? Please check your answer.

☐ Yes

☐ No

20. If no, why not? Please limit your answers to 3.

21. When you decided on your vote, did you believe that the Whale Shark Conservation Program will actually be effective in saving the Whale Sharks? Please check your answer.

☐ Yes (Go to # 23)

☐ No (Go to # 22)

22. If no, why not? Please check the most appropriate answers (limit your answers to three)?

☐ 1. The funds may not be used to support the program activities due to

- | |
|--|
| |
| |
| |
| |
- graft and corruption
2. The funds may not be used to support the program activities since the government may channel it to other uses
3. The funds may not be remitted on time by the collecting agency
4. Others, pls. specify _____

23. When you decided on your vote, did you like the proposal to collect people's contribution as a surcharge on their electricity bill?

☐ Yes (Go to # 26) ☐ No (Go to # 24)

24. If No, why not? Please check your answer/s. (Limit your answer to three).

	a. The electricity bill is always increasing. I'm afraid that paying for the Conservation program will further cause the increase of my bill.
	b. I can't see any connection between electricity and whale shark conservation – it doesn't have any basis.
	c. Not everyone is connected to SORECO – how can you collect from those not connected?
	d. The collection should not be mandatory every month - why can't we just pay when we want to?
	e. Monthly collection is too complicated - why not make this an annual payment?
	f. SORECO is not bound by law to do this – I don't know what will make them agree to do this task for Whale Shark Conservation Program.
	g. Others, pls. specify :

25. If you don't agree to the electricity bill surcharge, do you have other suggestion as means of collecting payment from the people of Sorsogon for Butanding Conservation Program?

1.
2.
3.

We are almost finished but before we wrap up, we'd like to ask some general information about you and your household that we will use as basis for analyzing your answers.

SECTION 4: HOUSEHOLD DATA

Household Water Services

26. What is the main source of drinking and cooking water in the house? Please check all applicable.

Private or shared water connection	
Own shallow well/hand pump	
Bottled water	
Water vendor	
Public (communal) tap	
Public (communal) well or hand pump	

River/Spring	
Rain water	
Other (<i>please specify</i>)	

27. How much was your household's own water bill last month? Or if you share the bill, how much was your share?

Monthly water bill	PhP
--------------------	-----

Electricity

28. Does your household have electricity?

☐ Yes ☐ No (Go to Number 31 & following)

29. Does your household pay the entire electricity bill, or share the bill with anyone outside your household?

Household paid entire bill	
Shared bill with someone else	

30. How much was your household's own electricity bill last month? Or, if you share the bill, how much was your share?

PhP _____ - last month

31. What is the main fuel used for cooking in the house? Please check your answer.

Electricity	
Bottled Gas (LPG)	
Kerosene	
Charcoal	
Firewood	
Others	

House Characteristics

32. Does your household own this house/apartment? Please check one.

Own	
Rent	
Provided by Employer	
Others, pls. Specify	

33. How many rooms does your house have (excluding the kitchen and bathrooms)

of rooms

Socioeconomic profile of the HOUSEHOLD HEAD-respondent (information should pertain to source of information).

34. How old are you?

Age

35. Gender

☐

Male

☐

Female

36. Civil Status

☐

Single

☐

Married

☐

Others, pls. specify _____

37. Religion

Roman Catholic	
Protestant	
Islam (Muslim)	
Buddhism	
Hindu	
Confucianism	
No religion	
Other (please specify)	

38. Are you able to read newspaper? Please check one.

☐

Able to Read

☐

Yes, but with some difficulty in understanding

☐

No, I can't read it

39. Highest Educational Attainment. (PLEASE GIVE the highest level attended on the left column. For example, college – 4th year)

No formal schooling	
Elementary	
High school	
Vocational	
College	
Master's	
Higher than Master's degree	

40. Please list number of household members per age group

Children (<12 yrs)	
Teens (13-17 yrs)	
Adults (above 18 yrs)	

41. How many in your family, including yourself, are earning cash income?

☐

Male

☐

Female

42. Please check the average monthly HOUSEHOLD income bracket where your household belongs (include the cash earnings of all family members who are working or gainfully employed, including yourself). Please check one

Below PhP 5000	
PhP 5,000-10,000	
PhP 10,001-15,000	
PhP 15,001-20,000	
PhP 20,001-25,000	
PhP 25,001-30,000	
PhP 30,001-35,000	
PhP 35,001-40,000	
PhP 40,001-45,000	
PhP 45,001-50,000	
PhP 50,000 & above	

43. Please indicate **how many** items your household owns for each of the following

Fan	
Radio	
Television	
Refrigerator	
Washing Machine	
Motorcycle	
Air conditioner	
Computer	
Car	

Economic Status and Access to Credit

44. How would you classify the economic status of your household relative to others in this country? Please check one.

Much better than most people (rich)	
Better than most people (relatively well off)	
About average	
Below average	
Much worse than average	
Don't know	

45. How easy would it be for your household to borrow PhP 5,000 from a bank or someone who was not a relative?

Very Easy	
Somewhat easy	
Somewhat difficult	

Very Difficult	
Impossible	
Don't know/not sure	

46. In the past year, did your household make donations to any charitable causes?

☐ Yes ☐ No

47. Are you a member of any environmental organizations?

☐ Yes ☐ No

48. Did you discuss the questions in this survey with other household members before you answered them?

☐ Yes (Go to Number **49**) ☐ No (Go to Number **51**)

49. If Yes, which of the following best describes how your household answered the questions in this survey?

I discussed some of the questions with others, but the answers I gave represented my own opinions	
We discussed together how to answer the questions together and gave our household's best judgment	
Others (pls. specify) _____	

50. How much time do you think you spent discussing the questions with other members of your household?

≤5 minutes	
6-15 minutes	
16-30 minutes	
31-60 minutes	
> 60 minutes	

51. Do you think your answers to the questions would have been different if you had been able to discuss them with other members of your household?

☐ Yes ☐ No ☐ Don't Know

Annex B. Some Components of the Proposed Whale Conservation Program

Main Objective of the Program: To ensure the continuous congregation of *butanding* in Donsol, Sorsogon

Focal Agenda for Conservation: Regulatory measures, Research, and Education.

1. Integrated Coastal Development Program (ICDP) - -habitat protection underlies the main objective of this component
 - a) Community-based Butanding Conservation Management
 - b) Delineation of municipal waters boundary: marine protected area, tourism zone, fishing zone with restriction on fishing gear use and specifications
 - c) Regular patrolling of Donsol waters
 - d) Regular monitoring of the physical, chemical and biotic quality of Donsol waters
 - e) Capacity-building in terms of human resources, knowledge, and facilities
 - f) Public education, awareness and information program

Minimum Cost of Implementation: (based on a general rough cost estimation for coastal management)

Management Cost	US\$
Community organizing	
4 CO's full-time working with communities (US\$4,000/person/year)	16,000
Education and training	
12 seminars	12,000
Education and training materials	3,000
Law enforcement	
1 full-time patrol boat, crew and maintenance	10,000
Information dissemination	
Weekly radio broadcasts	2,000
12 public meetings	6,000
Visitor centers (2) (annualized over 10 years)	3,000
Planning activities	
1 full-time ICDP planner and technical guide	6,000
4 planning workshops (US\$1,000/workshop)	4,000
TOTAL	62,000

Benefits and Costs of Coral Reef and Wetland Management, Olango Island, Philippines. by: Alan T. White, Michael Ross, Monette Flores, Tetra Tech

EM Inc., CRMP. CRMP Document Number: 04-CRM/2000

2. Conduct research studies and set up an organized data gathering system for scientific and technical information on whale shark. This will provide vital information for the

identification of proper coastal management options and for the formulation of basis or guidelines for setting limits/carrying capacity for the tourism sector.

Minimum Cost of Implementation: PhP 4 million (based on the following rough estimation)

Activity	Cost in million PhP (\$)
1. Whale shark specific genetic identification marker	2.15 (43,000)
Obtaining samples: Labor and travel	0.50 (10,000)
Development & testing of genetic ID marker	1.5 (30,000)
Labor and laboratory supplies	
Report preparation	0.15 (3,000)
2. Collection of biological data & staff training	1.38 (27,500)
Travel & subsistence (2biologists)	0.32 (6,400)
Training workshop	0.21 (4,200)
Travel	0.05 (1,000)
Accommodation & subsistence	0.63 (12,500)
Equipment	0.015 (3000)
Follow-up visits	0.013 (2,500)
3. Biotelemetry of Whale Sharks to identify migration routes	0.75 (15,000)
	(approx value)

Source: Fowler, Sarah. 2000. Whale Shark *Rhincodon typus* Policy and Research Scoping Study. Nature Conservation Bureau, UK
Exchange Rate : PhP 50 = \$1