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SOCIAL AND BIOPHYSICAL ASSESSMENT OF MARINE PROTECTED AREAS IN THE VISAYAS, PHILIPPINES

CONTENTS

Edited by

Angel C. Alcala, Imelda Flores, Celia Acedo and Gianani Gloria
SILLIMAN UNIVERSITY
Dumaguete City, Philippines

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Introduction

The eight papers in this volume discuss two basic aspects of marine protected area (MPA) establishment and management: (1) biophysical assessment and monitoring; and (2) social profiling of local communities and stakeholders who are dependent on coastal and marine resources and are responsible for the protection and management of these resources in the Visayas, Philippines.

The research project, as originally conceptualized, aims to provide the bio-physical and social baseline information for several MPAs in the Bohol Sea and the Visayan Sea, a major gap in the current nationwide effort in coastal/marine resource management (CRM). The baseline information is meant to serve as basis for future research and monitoring to assess the biodiversity and socio-economic impacts of marine protected areas. This way, the Commission on Higher Education (CHED), through its support for higher education faculty research, would contribute at least to food security in terms of potentially improved fisheries management, if not alleviation of poverty in coastal areas.

The eight papers are the result of the research collaboration of 16 higher education institutions (HEIs) faculty members, biologists, technical persons, and MPA managers. They are based on the research reports submitted earlier to the Silliman University CHED-Zonal Research Center under a GIA grant from the CHED by faculty-researchers and technical staff of five state universities and colleges and one city government. The five HEIs are Central Philippine University in Iloilo City (lead institution); Siquijor State College in Larena; Negros Oriental State University in Dumaguete City; Southern Leyte State University in Sogod; and Central Visayas State College of Agriculture, Forestry and Technology in Candijay. The lone local government unit is Sagay City, Negros Occidental. The Silliman University-Angelo King Center for Research and Environmental Management (SUAKCREM) provided technical services, as well as use of research facilities and library resources for the project.

The planning, data-gathering, and writing of the reports submitted to CHED and the preparation of manuscripts by the authors of the eight papers took more than one year, in 2005 through May 2006. The process of editing and final preparation of the manuscripts for publication, including the illustrations, required several months, ending in December 2006. The reader can appreciate the large amount of work both in the field and in the offices of the participating institutions that made possible this notable accomplishment.

We hope that the findings, conclusions, and recommendations in this volume will be useful to the faculty participants, local government units, nongovernment organizations (NGOs), people's organizations (POs), and MPA managers, especially in the Visayas.

As the initiator of the project and final editor of the eight papers, I wish to express my gratitude to those who contributed to this publication, particularly my CHED staff Jasper Maypa, Emily Layos, Geraldine Lopez, and Gianani Gloria.

Angel C. Alcala, Ph.D.
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December 26, 2006

PERSONAL AND HOUSEHOLD PROFILE, PERCEPTIONS AND ASPIRATIONS OF THE DEPENDENT POPULATIONS NEAR MARINE PROTECTED AREAS IN THE VISAYAS, PHILIPPINES

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ABSTRACT

This study was conducted in 2005 to determine the personal and household profile, perceptions, and aspirations of the dependent populations near Marine Protected Areas (MPAs) in the Visayas. Specifically, the study aims to (1) determine the personal background, primary and secondary work, and monthly income of the respondents; (2) determine their household size, number of children in school, number of working household members, total monthly income, and total monthly expenses; (3) determine the assets they owned, their type of housing, household facilities, and disposal of wastes; and (4) determine their perceptions on their household situation, changes in the community, their aspired prominence, general aspiration in life, and education of children.

The study is descriptive and used the one-shot survey design. The respondents are the local officials, officers and members of fisherfolk associations in the barangays where the marine protected areas (MPAs) are located. The researchers used stratified sampling to proportionately allocate the number of respondents from all the fisherfolk associations. Data collection was done through a structured interview. The respondents are generally in their middle ages, males, married, and reached elementary education. Most of them consider fishing as their primary income source and have an average income of P2,773.39 monthly.

Comparing their present household situation and their perceived situation in the next five years, more than half of the respondents said that they have a relatively better situation. The majority of the respondents also perceive the present condition of their communities to be relatively better than the situation five years before. Even with relatively positive perception of their present condition, they still want to be financially stable and hope that their children finish college. Three-fourths of the respondents do not want their children to become fisherfolk.

INTRODUCTION

A Marine Protected Area (MPA) is defined as any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which have been reserved by law or other effective means to protect part or all of the enclosed environment (Resolution 17.38 and 19.46 of the IUCN general assembly, as cited by Christie & McCay (2003). MPAs have emerged as popular tools for marine conservation and fisheries management. Although many types of MPAs exist (e.g., reserves, sanctuaries, and parks), each involves a group of people collectively engaged in deciding biological and social goals (Christie & McCay 2003).

Many organizations and government agencies are active nationwide in establishing protected areas like marine reserves, marine sanctuaries and marine parks. Marine reserves, or no-take marine areas, are areas of marine environment protected from various forms of human exploitation, especially fishing. Marine reserves are synonymous with marine protected areas, marine harvest refugia, and marine sanctuaries. The areas outside the reserves are referred to as non-reserves or fished areas, where fishers are allowed to fish using traditional and non-destructive fishing methods (Alcala and Russ 1990, Alcala 2001, Indab & Suarez-Aspilla 2004). Protected areas are fast gaining popularity as management tools for protecting and managing fisheries. They are also used as a conservation tool for preserving biodiversity (Alcala 2001). Developing a marine protected area is a complex process involving not only the meeting of technical requirements but also the soliciting of community recognition and support of MPA objectives through education and social empowerment (Russ & Alcala 1999). The success of this approach depends on the support and participation of the stakeholders and concerned government agencies (Oracion 2003).

The Philippines has more than two decades of experience with community-based coastal resource management initiatives in which marine sanctuaries play an important role (Crawford et al. 2000, as cited by Indab & Suarez-Aspilla 2004). Most marine protected areas in the country are coral reefs, although a few are mangroves and fewer still are seagrass beds. One aspect common to these areas is the high production of fisheries and other economically important species (Alcala 2001).

Marine reserves are considered key elements of Community-based Coastal Resource Management (CBCRM) in the country. Almost all CBCRM projects include a provision for the establishment of marine reserves as a strategy to allow recovery of degraded mangroves, coral reefs, and their resources (Alcala 1998). Generally, CBCRM projects in the Philippines include: (1) social preparation and community organizing; (2) environment education and capacity building; (3) resource management planning, including protective management; (4) support activities for livelihood and financial resource mobilization; (5) research and monitoring; and (6) networking activities. The effort and time allocation to these activities differ from project to project. In general, however, the social preparation, community organizing, and environmental education are given priority and importance in the early stages of project implementation.

From the late 1970s to the late 1990s, there were few fisheries or coastal resource-related programs and projects that either incorporate various degrees of community participation or were fully community-based in character (Alcala 1998). Some of these projects were small and limited to specific localities. There were also large projects whose coverage is regional or national in scope. At present, many of the 350 MPAs (SUAKCREM, unpublished manuscript) are probably community-based or are co-managed by local government units (LGUs). But many MPAs in this list are not well-managed (Alcala unpublished data). Indab and Suarez-Aspilla (2004) in their study on the status, direction, and management issues of marine protected areas of the Bohol (Mindanao) Sea, noted that much needs to be done on marine sanctuaries in the Philippines.

A recent report of Alcala et al. (2006) showed that MPAs cause the improvement of fisheries, marine biodiversity, and livelihood of stakeholders in 16 countries worldwide. These are managed primarily either by local governments and local communities; or by central governments and their agencies, many of which received financial support from international NGOs and international funding agencies. In this study, the authors confirmed that fisheries,

biodiversity and livelihoods are all improved in areas where MPAs are co-managed by local government units and local communities.

Oracion's study (2002) on the perceptions of stakeholders of the status of their MPA revealed that the stakeholders consider marine sanctuaries in better condition during the survey compared to five years ago. About 85% of those stakeholders who gave favorable rating to the present condition of marine sanctuaries said that these are not polluted, resulting in an improved condition of fishes and corals. Similarly, Pomeroy and co-authors (2003) confirmed the perceptions of fishing households that fisheries and marine resources are improved through effective management of marine sanctuaries.

Results of observations and experiments relating to coral reef fisheries in central Philippines have been presented by Alcala (1998). Coral reef fisheries were found in abundance and greater variety after 10 to 15 years of protection, depending on the species. There was also an increase in the quantity of fish caught from the non-reserve area during the period that the reserve was protected. However, fish abundance in the reserve was reduced after protection was lifted. When protection of the reserve was restored, fish abundance and density again increased.

Study Areas

Seven MPAs were covered by the study in 2005. Three of them are located on Siquijor Island, namely the Tulapos MPA in Tulapos, Enrique Villanueva; Tubod MPA in Tubod, San Juan; and Nonoc MPA in Nonoc, Larena. Two are in Southern Leyte, which are the Biasong MPA in Biasong, Libagon; and the Tomas Oppus MPA in San Antonio. The remaining two are the Panas MPA in Panas, Candijay, Bohol; and the Sagay Marine Reserve in Sagay City, Negros Occidental.

All of the MPAs were created through a municipal ordinance. As regards the Sagay Marine Reserve, the efforts to strengthen the establishment and management of it led to the passing of Republic Act No. 9106 (An Act for the Establishment and Management of Sagay Marine Reserve, Defining its Scope, Coverage and for other Purposes). The Senate and the House of Representatives passed this on February 8, 2001 and presented this to the President on March 15, 2001. Then President Joseph Estrada approved the law on April 14, 2001.

Records show that all the MPAs covered by this study were created in early 2000 to preserve and maintain productive, biologically diverse, and ecologically balanced ecosystems. It is important to determine whether after at least three years, the aims for establishing the MPAs have been achieved and whether or not the MPAs have benefited the fisherfolk and the entire community.

Toward this end, there is a need to establish baseline information for each of the MPAs. The baseline data would be the basis for improving management practices and for the long-term implementation of coastal resource management initiatives.

Objectives and Significance of the Study

The general objective of this study is to determine the personal and household profile, perceptions, and aspirations of the dependent population near the Marine Protected Areas in the Visayas. Specifically, the study aims to:

1. determine the personal profile of the dependent population in terms of background, primary and secondary work, and monthly income of the respondents;
2. determine their household size, number of children in school, number of working household members, total monthly income, and total monthly expenses; and
3. determine their perceptions on their household situation, changes in the community, their aspired prominence, general aspiration in life, and education of children.

Results of this study would be very helpful in determining the status of the MPAs, the community, and its people after at least three years of the MPAs' declaration and establishment. Specifically, results of the study would be significant to the following:

Fisherfolk. The study could provide information whether or not their living conditions improved as a result of the MPAs' declaration and establishment.

The study could also help identify policies that are detrimental or favorable to the economic activities of the people living near the MPAs.

MPA Managers/Leaders and Policy makers. MPA managers, leaders, and policy-makers would be made aware of the policies, rules, and regulations that need to be strengthened or changed so that future decisions would truly reflect the needs of the people, the community, and all stakeholders of MPAs.

Introduction. Knowing the status and needs of the people and identifying the policies, rules, and regulations that need to be strengthened will eventually lead to a productive community. Improving the living conditions of the people and strengthening the management of MPAs could help improve the economic condition of those who are directly dependent on their coastal and marine resources, as well as the whole community.

Overall, the results of the baseline study would be beneficial to the marine environment. The improvement in policies and approaches to MPA management would ensure a highly productive, biologically diverse, and ecologically balanced marine ecosystem. The data generated by this study could also serve as basis for future studies.

RESEARCH METHOD

Research Design

The study is descriptive and used the one-shot survey design. It aims to determine the personal and household profile of the dependent population; know their perceptions on their household situation and changes in the community including their aspired prominence or the extent to which the respondent would want to be known (i.e., within the barangay, municipality, province), general aspiration in life and education of children; describe the fishing practices of the dependent population, their problems encountered and perceptions of change in the fishing industry; and to know their awareness, perception, and reaction about the MPAs' declaration of their area.

Study Population and Sample

The total study population was composed of 192 local officials, officers, and members of fisherfolk association in the barangays (villages) where the MPA is located. Sample size was computed based on the list of officers and members of the fisherfolk organizations of all the target areas. The researchers used stratified sampling to proportionately determine the number of respondents from all the fisherfolk associations. Systematic sampling with random start was followed in identifying the survey respondents.

Data Collection and Survey

Data collection was done through Structured Interview. The interviewer used an Interview Schedule in asking and recording the answers of respondent. Prior to the conduct of the actual data collection, the interviewers were oriented on the content of the instrument and trained on how to conduct one-on-one interviews.

The research instrument was validated by an expert juror and was pre-tested in one MPA in the Municipality of Dauin, Negros Oriental. The instrument was modified and finalized after the pre-testing.

After the primary data collection was done through structured interview, secondary data were also obtained from Barangay and Municipal Resolutions and/or Ordinances.

Data Processing and Analysis

Data processing and generation of tables was done at the University Research Center of Central Philippine University using Statistical Package for Social Sciences (SPSS) Version 12. Since this is a descriptive study, frequency distribution tables and means were the main statistical measures used.

RESULTS

Personal and Household Profile of Respondents

Table 1 shows the personal background of the respondents. The mean age of the respondents is 44.72 years and 30.2% of them are 41 to 50 years old. Only 14.6% are 30 years or younger while 10.4% are more than 60 years old. More than 93% of the respondents were males; 6.3% are females. More than 93% of the males are married while the rest (9.9%) are single. About 58.9% had elementary-level education. Only 1.6% of them had no formal education and 14.1% had college-level education.

Since the respondents of this study are basically fisherfolk, 121 or 63.0% considered fishing as their primary work (Table 2). Other respondents are primarily farmers (10.4%), laborers (8.8%) and employees (6.3%). From their primary work, the respondents get an average income of P2,773.39 monthly. More than half of the respondents said that their monthly income ranges from P1,001 to P3,000, while 20.7% receive P1,000 and below and 8.9% receive more than P5,000 monthly. Aside from their primary work, 125 or 65.1% of the respondents had secondary sources of income. Of those having secondary work, almost half (49.6%) consider fishing as their secondary work. The rest included work as farmer/caretaker (28.8%), laborer (9.6%) and LGU official (6.4%).

From their secondary work, 54.4% get an additional income of P1,000 and below while 28.0% get additional income ranging from P1,001.00 to Php 2,000.00 monthly or an average of P1,583.80 monthly. As a whole, the respondents receive an average of P4,357.19 monthly (63.65% from primary and 36.35% from secondary income sources).

Data in Tables 2 and 3 also reveal that of the 192 respondents, 121 (63.0%) consider fishing as their primary income source while 32.3% consider fishing as their secondary income source. Ten respondents are into buying and selling fish. These indicate the direct involvement of the respondents in fishing in their respective areas.

The data in Table 4 show that most of the respondents' households have 3 to 4 members (40.6%) followed by those with 5 to 6 members (27.1%), those with less than 3 members (12%) and those with more than 8 members (5.7%). The average household size is 4.74 members. Of this household size distribution, the respondents' household has an average of 2.43 male members and 2.31 female members. About 6 out of 10 households (59.4%) have one or two male members and about the same proportion of households (62.0%) have the same number of female members. This indicates that there are more or less the same number of males and females in the respondents' households.

The data further show that the age of majority of household members ranged from 11 to 20 years old (29.7%), followed by those within 21 to 30 (28.6%), and from 31 to 40 (21.4%). About 5.2 % are 60 years old or below while less than 1% are 10 years old or below. The mean age of household members was 30.35 years old, indicating that the households have relatively younger members.

As shown in Table 5, 120 respondents or 62.5% have one to two children of school age while 72 or 37.5% have more than two children of school age. Results, however, show that 135 or 70.3.3% of the respondents have one or two children who are in school but only 57 or 29.7% of the respondents have more than two children in school. This means that not all children of school age are in school, particularly those of families with more than 2 children of school age. The households have an average of 2.09 children of school age but they have an average of only 1.7 children in school.

Table 6 shows that 86.5% of the households have one to two working members. The respondents' households have an average of 1.62 working members. Given the average household size of 4.74, a burden or dependency ratio of 2.93 was computed. This means that each working member is supporting almost 3 household members.

The data in Table 6 also show that the respondents' households are earning an average of P5,285.90 monthly. Considering the average income of the respondents from their primary and secondary income sources of P4,357.19, the figures

imply that other members of the household are able to contribute an average of P928.70 or 17.6% of the total household income. This also implies that the primary breadwinner is responsible for 82.4% of the total household revenues. Most of the respondents' households (43.8%) have a total household income of P3,001 to P6,000 monthly, 30.7% have Php 3,000 and below, and only 3.1% have more than P15,000.

On the other hand, Table 7 shows the estimated yearly household expenses of the respondents for the education of their children, medical expenses, food, clothing, recreation, utilities, and other household expenditures. For the education of their children, the respondents spent an average of P12,946.17. Although most of them (37.5%) have not spent any amount and 12% only spent P2,000 or less, 22.4% spent more than P10,000. Please note that the respondents' households have an average of 1.7 children who are in school.

Their medical expenditures show that the bulk of the respondents (66.1%) spend P2,000 or less and 26% spend from P2,001 to P6,000. Only 3.6% spend more than P10,000. The respondents spend an average of P2,762.88 for medicine.

In terms of their food expenditures, the respondents spend an average of P24,414.14 yearly, with 86.5% of them spending more than P10,000. The remaining proportion (13.5%) spend only P10,000 or less. For clothing, the majority of the respondents (69.3%) spend P2,000 or less yearly. Only 5.2% spend more than P10,000. On the average, the respondents spend P2,345.55 yearly for clothing alone.

Although one-third of the respondents did not give any answer regarding their recreation expenditures, 22.9% claimed that they spend P2,001 to P4,000 for recreation and 21.9% spend P2,000 or less. Only 4.2% spend more than P10,000 for recreation. The respondents spend an average of P4,092.16 for recreation yearly.

The data also show that 21.4% of respondents spend an average of P4,472.63 for utilities, with 5.2% spending P2,000 and below and 4.2% spending more than P10,000. There are 78.6% of respondents who did not report any expenditure for utilities. The same proportion of the respondents reported the same amount for other household expenditures.

For their total household expenditures, the respondents spend an average of P45,723.25 yearly. The greatest proportion of them (33.9%) spend more than P50,000, while 22.4% spend P30,001 to P40,000. Only 5.2% spend P10,000 and below (Table 8). Based on the average figures, the bulk of their household expenditures goes to food (42.42%), followed by education of children (22.49%), other expenditures include: (11.34%) utilities (7.77%), recreation (7.11%), medical (4.80%), and clothing (4.07%) and other expenditures (11.34%). With a mean household size of 4.74, it is estimated that each household member spend an average of P12,143.37 yearly or P1,011.95 monthly.

Considering the average monthly household income of the respondents of P5,285.89 monthly or P63,430.68 yearly, the respondents' households could save an average of P17,707.43 yearly or 27.9% of their total household income.

Perceptions and Aspirations

In the study, the respondents were asked about the situation of their respective households five years ago, as well as the situation at present and five years hence. Majority of the respondents (60.9%) consider their household situation to be at the minimum subsistence level five years ago. About one-fifth (20.3%) are at the health and decency level, 16.1% at the poverty level, and 2.6% at the comfort level (Table 9).

Comparing their present condition with that five years ago, the majority (63.5%) perceive it to be similar. About 18.2% claim that they are either relatively poorer or relatively better (Table 10). Data in Table 11, however, show that 75.0% of the respondents perceive themselves to be at the minimum subsistence level, 14.1% at the health and decency level, 10.4% at the poverty level and only 0.5% at the comfort level. The data in Table 10 and Table 12 indicate that the proportion of those in the minimum subsistence level increased by 14.1% because 5.7% and 8.3% of the respondents said that their household situation has improved and declined, respectively.

Comparing their present household situation and their perceived situation five years after, 53.6%

of respondents said that they have relatively better situation, 40.1% see a similar situation, and 6.3% see a relatively poorer situation (Table 11). This perceived change in their household situation is manifested in Table 11 by the decrease in the proportion of those at the lower two levels by 28.7% and the increase in the proportion of those at the higher levels by the same proportion of the respondents. The respondents who perceive that they are at the poverty level at present declined from 10.4% to 3.1% and those at the minimum subsistence level declined from 75.0% to 53.6 percent. On the other hand, those at the health and decency level and at the comfort level increased from 14.1% to 33.3% and from 0.5% to 9.9%, respectively.

The respondents were also asked about their perception of the situation of their communities five years ago, at present and five years after. Their comparison is reflected in Table 12 and Table 13. About 54.7% of the respondents perceive the present condition of their communities to be relatively better than its situation five years ago. There are 71.3% of respondents who said that their communities will be relatively better five years after.

On the other hand, 31.8% and 25.0% of the respondents perceive the situation of their communities to be relatively the same five years ago and five years after, respectively; while 13.5% and 3.6% of the respondents perceive the situation of their communities to be relatively poorer five years ago and five years after, respectively.

Presented in Tables 14, 15, and 17 are the aspirations of the respondents. As shown in Table 14, 65.6% of respondents want to be known only in their respective barangays. Meanwhile, 19.8% of respondents do not want to be known, while 12.5%, 1.6%, and 0.5% want to be known in their municipality/city, province and throughout the country, respectively.

About 50.5% of respondents want to be financially stable, 33.9% want to remain fisherfolk but successful ones, 9.4% want to own business enterprises and the rest have other general aspirations in life (Table 15). With regard to their aspired education for their children, 76.6% of the respondents want their children to finish college while 13.5% and 4.2% want their children to finish high school and elementary, respectively. Moreover, 2.1% and 0.5% want their children to earn master's and doctoral degrees, respectively (Table 16).

When respondents were asked if they want their children to become fisherfolk like them, 75.0% answered in the negative and only 19.3% want their children to be one (Table 17). Those who do not want their children to become fisherfolk like them said that they want their children to finish their studies (36.1%), they consider fishing to be a difficult and risky job (12.5%) , and they do not want their children to experience what they have experienced (10.4%). Those who want their children to be fisherfolk like them said that they need help in fishing (35.1%), their children should follow in their footsteps (19.0%), they could help increase their household income (16.2%), the children themselves want to be fisherfolk (13.5%), and that they cannot do anything else but go into fishing (10.8%).

DISCUSSION

The estimated annual average household income of the respondents which is P63,430.68 is very low compared to the estimated average income of Filipino families which is P144,039 (NSCB, 2000). According to the National Statistics Coordination Board (NSCB), the average savings of Filipino families in the year 2000 was P26,037 yearly, higher than the average household savings of the fisherfolk covered by this study, which is only P17,707.43. If the average family income and savings of the fisherfolk are further compared with the average income and savings of the families in Central Visayas (Region VII), the data show that their average family income is lower than that of Region VII, but their average savings are higher than those of the families in Region VII.

The computed average monthly and annual incomes of the respondents are based on the assumption that they are regularly doing fishing and other income generating activities. It should be noted that oftentimes, they have also encountered problems like low fish catch, destroyed or lost accessories and bad weather conditions. Considering these factors and a high dependency ratio of 1:3, it is justifiable that the respondents will view their present condition

to be at the minimum subsistence level. This is also the main reason there is a discrepancy between the average number of school age children and the mean number of children who are in school. It is therefore very important that the social preparation and community organizing stages, as well as the support activities for livelihood and financial resources mobilization, be given importance during the MPA establishment. As mentioned in the study of Alcala (1998), and Alcala and Russ (2000), a community should be given the opportunity to identify its own needs and the problems it must solve to improve the socio-economic well-being.

The perception of the majority of the respondents that the present condition of their communities is relatively better than its situation five years before and that their communities will also be relatively better five years from now (assuming MPAs are successful) supports the findings of Alcala (2005) which indicate that the MPAs have caused the improvement of fisheries, marine biodiversity, and livelihood of stakeholders in a number of cases.

The majority of the respondents aspire to have a better future for their family. They want their children to finish college or even acquire advanced degrees and do not want them to become fisherfolk. These findings are also consistent with the result of the study conducted in Dauin municipality and Apo Island (Negros Oriental) by Oracion et al. (2005) which revealed that the fisherfolk want their children to become nurses and work outside the country in order to receive higher salaries. They also hope that their children would become seafarers overseas, draftsmen, police officers, electricians, artists, and government workers.

The findings of the study which show an increase in the fisherfolk population, improvement in fish catch, and control of illegal fishing support that of Oracion (2002) and Pomeroy et al. (2003). These studies revealed that the sanctuaries are in better conditions and the majority of stakeholders gave favorable rating to the present condition of marine sanctuaries. These positive perceptions are attributed to the effective management of marine sanctuaries.

Like other people, fisherfolk have their own aspirations in life, as well as for their children. In two MPA areas, Dauin municipality and Apo island, Negros Oriental, Oracion et al. (2005) found that 33 % of the children preferred to work outside Dauin or Dumaguete. In fact, three out of 21 of them dream of becoming nurses and working outside the country in order to receive higher salary. Less than one-third of them want to become seafarers overseas, draftsmen, police officers, electricians, artists and government workers. But there are males who are just contented with fishing, farming, carpentry, or being a *Bantay Dagat*. In contrast to their children's aspiration to work outside Dauin, 95% of the parents do not have any plans to migrate. Half of them are already contented with their livelihood and have no better place to go. Moreover, they consider their community peaceful.

On Apo Island, the work aspirations of the children vary. Almost one-third of the children want to become teachers while the rest of the females want to become computer experts, doctors, stewardesses, midwives, journalists, and office workers. Three out of seven males want to become engineers, while two want to become police officers, and one wants to be a dive guide. Only one of them said he wanted to become a fisherfolk like his father. The number of children who prefer to work in other countries was smaller than half of the interviewees. More females prefer to stay on the island, which is two-fifths of the total number of children who were participants of the study. Higher pay or more job opportunities are the reasons for their aspiration to work outside their island or go abroad. None of the households plan to move out of the island since they have been enticed by its fishing potential.

SUMMARY

Personal and Household Profile of Respondents

The mean age of the respondents is 44.94 years and most of them are in the age range of 41 to 50 years old. About 9 out of 10 respondents are males. Majority of the respondents have elementary level of education. The respondents in the study are generally

in their middle ages, males, married and elementary educated.

Majority of the respondents consider fishing as their primary work and from their primary work, the respondents get an average income of P2,773.39 monthly. Aside from their primary work, 125 of the respondents have secondary sources of income that give them an average income of P1,583.80 monthly. As a whole, the respondents receive an average income of P4,357.19 monthly, with 63.65% from primary and 36.35% from secondary income sources.

Most of the respondents have households with 3 to 4 members. Their average household size is 4.74 members with an average of 2.44 male members and 2.30 female members or a sex ratio of 1.06. About 6 out of 10 households have 1 to 2 male members and about the same proportion of households have also the same number of female members, indicating more or less the same number of males and females in the respondents' households. The mean average age of household members is 30.35 years, indicating that the households have relatively younger members. The households have an average of 2.09 children of school age but they have only an average of 1.67 children in school. This means that not all of the children of the respondents who are of school age are in school.

The respondents' households have an average of 1.62 working members with more than 8 of 10 respondents having households with 1 to 2 working members. Given the average household size of 4.74, a burden or dependency ratio of 2.93 was computed which means that each working member is supporting almost 3 household members. The respondents' households earn an average of P5,285.89 monthly. Given the average income of the respondents from their primary and secondary income sources of P4,357.19, the figures imply that other working members of the household are able to contribute an average of P928.70 or 17.6% of the total household income. This also implies that the primary breadwinner is responsible for 82.4% of the total household revenues.

The respondents spend an average of P12,945.17 for the education of their children, P2,762.88 for medicine, P24,414.14 for food, P2,345.55 for clothing, P4,092.16 for recreation, P4,472.63 for utilities and the same amount for other household expenditures yearly. As a whole, the respondents spend an average of P45,723.25 yearly. Based on average figures, the bulk of their household expenditures goes to food, followed by education of children, utilities, recreation, medical, clothing and other expenditures. With the average monthly household income of the respondents of P5,264.30 or P63,171.60 yearly, the respondents' households are capable of saving an average of P17,448.35 yearly, or 27.5% of their total household income.

Perceptions and Aspirations

The study reveals that majority of the respondents consider their household situation five years ago at the minimum subsistence level. The majority of them also perceive that their current household is still at the minimum subsistence level. Comparing their present household situation and their perceived situation five years from now, more than half of the respondents claimed to have a relatively better situation. The study also shows that majority of the respondents perceive the present condition of their communities to be relatively better than its situation five years ago. The majority of the respondents further perceive their communities to be relatively better five years from now.

Majority of the respondents want to be known locally only in their respective barangays. About half of them want to be economically stable and more than three-fourths of the respondents want their children to finish college. Consequently, about the same proportion of the respondents do not want their children to become fisherfolk like them.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions can be drawn from the study. Recommendations are underlined.

1. The stakeholder-respondents have shown a high level of awareness of the importance of MPAs as a means to improve the status of fisheries resources and the quality of human life. <u>There is a need to develop more commitment to protection and management of the coastal and marine resources.</u>

2. The households, consisting basically of young people involved in fishing and are characterized by a high dependency ratio of 2.93, earn only a low income of P5,000 to P6,000 monthly. There is an urgent need for coastal communities to protect their coastal and marine resources, including fisheries, to allow recovery of the resources to the point where exploitation would be sustainable. MPA establishment is one of the management options.
3. The respondents are optimistic about the future, despite the low incomes. Comparing their present household situation with their perceived situation five years from now, more than half of them project a relatively better situation. The majority of the respondents also perceive the present condition of their communities to be relatively better compared to that five years ago. This optimism will only come true if their major source of livelihood, that is, coastal and marine resources, are safeguarded and managed well.
4. Part of the optimism could be due to the wish of the respondents (75% of total) that their children would become skilled workers and professionals, no longer fishers. If this aspiration comes true, then less exploitation pressure would be exerted on coastal and marine resources, allowing these depleted resources to recover over time.
5. Majority of the respondents want to be economically stable and known locally only in their respective barangays.
6. The results of this study should be presented to the different stakeholders of the MPAs studied for their appreciation and use.
7. Government and non-government agencies responsible for MPA establishment should use indicators for evaluation as to whether or not MPA goals and objectives are achieved. These indicators shall cover governance, biophysical and socioeconomic aspects.

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Table 1. Personal background of the respondents (N = 192).

Categories		Frequency	Percent
Age			
30 years old and below		28	14.6
31 – 40		49	25.5
41 – 50		58	30.2
51 – 60		37	19.3
61 years old and above		20	10.4
	Total	**192**	**100.0**
Mean Age = 44.94 years old			SD = 13.18
Sex			
Male		180	93.8
Female		12	6.3
	Total	**192**	**100.0**
Marital Status			
Single		19	9.9
Married		173	90.1
	Total	**192**	**100.0**
Educational Attainment			
No formal education		3	1.6
Elementary		113	58.9
High School		49	25.5
College		27	14.1
	Total	**192**	**100.0**

Table 2. Distribution of respondents according to their primary work and monthly income (N = 192).

Categories		Frequency	Percent
Primary Work			
Fish buying and Selling		8	4.2
Fishing		121	63.0
Farming		20	10.4
Small Business/Sari-Sari Store		3	1.6
Laborer		17	8.8
Employee		12	6.3
Driver		5	2.6
LGU Official		6	3.1
	Total	**192**	**100.0**
Monthly Income			
P1000 and below		40	20.7
P1001 – P2000		54	28.1
P2001 – P3000		46	24.0
P3001 – P4000		22	11.5
P4001 – P5000		13	6.8
P5001 and above		17	8.9
	Total	**192**	**100.0**
Mean Income = P2773.39			SD = P1718.39

Table 3. Distribution of respondents according to their secondary work and monthly income (N = 125).

Categories		Frequency	Percent
Secondary Work			
Fish buying and Selling		2	1.6
Fisherfolk		62	49.6
Farmer/Caretaker		36	28.8
Small Business/Sari-Sari Store		3	2.4
Laborer		12	9.6
Escort		1	0.8
Driver		1	0.8
LGU Official		8	6.4
	Total	**125**	**100.0**
Monthly Income			
P1000 and below		68	54.4
P1001 – P2000		35	28.0
P2001 – P3000		11	8.8
P3001 – P4000		1	0.8
P4001 – P5000		2	1.6
P5001 and above		4	3.2
No Data		4	3.2
	Total	**125**	**100.0**
Mean Income = P1583.80			SD = P2154.74

Table 4. Distribution of respondents according to their household size, average age of household members, and number of male and female household members (N = 192).

Categories		Frequency	Percent
Household Size			
2 and below		23	12.0
3 – 4		78	40.6
5 – 6		52	27.1
7 – 8		28	14.6
9 and above		11	5.7
	Total	**192**	**100.0**
Mean = 4.74			SD = 2.15
Average Age			
10 years old and below		1	0.5
11 – 20		57	29.7
21 – 30		55	28.6
31 – 40		41	21.4
41 – 50		18	9.4
51 – 60		10	5.2
More than 60		10	5.2
Total		**192**	**100.0**
Mean = 30.35 y.o.			SE of Mean = 1.08
Number of Male Members			
2 and below		114	59.4
3 – 4		64	33.3
5 – 6		11	5.7
7 – 8		3	1.6
	Total	**192**	**100.0**
Mean = 2.43			SD = 1.36
Number of Female Members			
2 and below		119	62.0
3 – 4		55	28.6
5 – 6		18	9.4
	Total	**192**	**100.0**
Mean = 2.31			SD = 1.40

Table 5. Distribution of respondents according to number of school age children and the number who are presently in school (N = 192).

Categories	Frequency	Percent
No. of School Age Children		
2 and below	120	62.5
3 – 4	51	26.6
5 – 6	14	7.3
7 – 8	7	3.6
Total	**192**	**100.0**
Mean = 2.09		SD = 1.97
No. of School Age Children in School		
2 and below	135	70.3
3 – 4	45	23.4
5 – 6	10	5.2
7 – 8	2	1.0
Total	**192**	**100.0**
Mean = 1.67		SD = 1.67

Table 6. Distribution of respondents according to their number of working household members and total household income (N = 192).

Categories	Frequency	Percent
No. of Working Household Members		
None	4	2.1
1 - 2	166	86.5
3 – 4	17	8.9
5 – 6	5	2.6
Total	**192**	**100.0**
Mean = 1.62		SD = 0.93
Total Household Monthly Income (PhP)		
P3000 and below	59	30.7
P3001 – P6000	84	43.8
P6001 - P9000	24	12.5
P9001 - P12000	13	6.8
P12001 - P15000	1	.5
More than P15000	6	3.1
No answer	5	2.6
Total	**192**	**100.0**
Mean = P5285.9		SD = 5981.04

Table 7. Distribution of respondents according to their estimated household expenses per year (N = 192).

Categories		Frequency	Percent
Education of Children			
P2000 and below		23	12.0
P2001 – P4000		18	9.4
P4001 – P6000		17	8.8
P6001 – P8000		12	6.3
P8001 - P10000		7	3.6
P10001 and above		43	22.4
None		72	37.5
	Total	**192**	**100.0**
Mean = P12945.17			SD = P16733.83
Medical Expenses			
P2000 and below		127	66.1
P2001 - P4000		31	16.1
P4001 - P6000		19	9.9
P6001 - P8000		3	1.6
P8001 - P10000		1	.5
P10001 and above		7	3.6
None		4	2.1
	Total	**192**	**100.0**
Mean = P2762.88			SD = P8261.06
Food			
P2000 and below		10	5.2
P2001 – P4000		6	3.1
P4001 – P6000		7	3.6
P8001 – P10000		3	1.6
P10001 and above		166	86.5
	Total	**192**	**100.0**
Mean = P24414.14			SD = P17248.55
Clothing			
P2000 and below		133	69.3
P2001 - P4000		16	8.3
P4001 - P6000		23	12.0
P6001 - P8000		1	.5
P10001 and above		10	5.2
No Answer		9	4.7
Total		192	100.0
Mean = P2345.55			SD = P3620.22