Enrique G. Oracion

Are the Children Willing? Intergenerational Support for Marine Protected Area Sustainability

The Apo Island "no-take" marine protected area (MPA) in Dauin, Negros Oriental, Philippines has remained consistently stable since the time it was directly managed by the community up to the present under the management of the Protected Area Management Board (PAMB). Based on the perceptions of grandparents, parents, and children, the future of this MPA also appears promising. However, the insignificant but consistent downward trends in the perception ratings of adults of MPA enforcement, compliance, biophysical conditions, and benefits imply some emerging resentments and cynicisms towards the current MPA management. Nevertheless, the absence of significant differences in perceptions in all these parameters by raters across generations suggests that intergenerational flow and sharing of MPA knowledge and realities are at work in which adults serve as information providers and role models to the children.

INTRODUCTION

Marine protected areas (MPAs) were started because of the severe degradation of coral reefs and fisheries all over the Philippines, including at Apo Island in the 1970s (White *et. al.*, 2002; Raymundo & White, 2004). Several studies (Alcala & Russ, 1990; Russ *et al.*, 2004; Christie, 2005; White *et al.*, 2006) have validated their potential for biodiversity conservation and fisheries management in the country. At the same time there is skepticism about whether they significantly benefit the host communities whose fishing practices have been restricted (Eder, 2005). Even though MPAs are seen as biological successes, there are also those considered to be social failures because some resource users are marginalized in terms of decision-making, management, and benefits (Christie, 2004). Tensions sometimes erupt among various stakeholders because of differences in perspectives and priorities in management policies and regulations (Oracion *et al.*, 2005b). Because community or social involvement necessarily impacts MPA quality (White *et al.*, 2002; Pollnac & Pomeroy, 2005), how these factors influence the perceptions and attitudes of present and future generations of resource users towards MPAs is a matter of

concern among those who promote MPAs as fisheries management and conservation tools.

From an anthropological perspective, this research interest requires seeing an MPA beyond its physical attributes because social sustainability of MPA management necessarily precedes MPA ecological sustainability. MPA is likewise regarded as a socially controversial imposition on culturally determined spatial behavior of fishers and other resource users. Its success and sustainability do not only rely on its technical design but also on the continuing support of MPA management by multiple stakeholders (White *et al.*, 2002; Oracion, 2003). However, achieving MPA sustainability is a complicated process particularly because it deals with a commons, and also involves a determination of which social good will benefit a greater number of people across social classes and generations.

These assertions follow Mascia's (2004, p.164) argument that MPAs "are not only products of social processes but they also have social ramifications" that eventually feedback and determine their ecological future. Congruent to this, Eder (2005, p. 147) stresses that "class, ethnic, and gender differences among fisherfolk powerfully influence how the benefits and cost of coastal resource management programs *in general* [emphasis mine] are perceived and experienced in fishing communities". But while it is important to study how social differences may curtail involvement in nature conservation initiatives as well as enjoyment of their benefits, it is likewise interesting to examine how intergenerational differences will influence current efforts. Alcala (2001, p. 98), whose expertise is biological science, has already pointed out the significant role that three generations of people (*i.e.*, grandparents, parents and children) in a community play in the continuance and sustainability of MPAs. Assuming that a change in political leadership does not alter MPA management system, intergenerational support is a good indicator of MPA sustainability. As a social phenomenon, it is therefore worthy of serious investigation.

BACKGROUND OF THE STUDY: HISTORY OF APO ISLAND MPA

Through a case study of Apo Island in Dauin, Negros Oriental, Philippines, this paper examines how individuals across generations perceive MPA management and condition, how these perceptions spread across generations, and how they influence intergenerational support. The issues being investigated specifically include perceptions on MPA enforcement, compliance, biophysical conditions, and benefits it purports to provide. Consequently, for the purpose of this paper, intergenerational perception ratings of these parameters are compared over time to predict the probability that an MPA will be sustainable. The discussion will also explore the processes and venues by which pro-MPA knowledge and behaviors are transmitted to the children.

Measuring about 11 hectares, the Apo Island MPA is the oldest and the first successful community-based MPA in the Philippines (Alcala 2001;

Raymundo & White, 2004). For this reason, it is an appropriate site for this case study. Of volcanic origin and situated 7 km off the mainland, Apo Island measures about 74 hectares and has a population in 2004 of 683 individuals distributed among 137 households (SCFHPI, 2004). Its MPA was established with the help of the Marine Conservation Development Program (MCDP) of Silliman University (Cabanban & White, 1981; Deguit, 1989). Developed after the other Silliman University-initiated MPA project, the Sumilon Island, the Apo MPA was preceded by greater effort in community organizing aimed at promoting its social acceptability as well as capacitating local residents in MPA management (Russ & Alcala, 1999; Raymundo & White, 2004).

Thus, the success of Apo Island's MPA is not an overnight story but a result of a long and tedious educational campaign, which was started in July 1979 to enhance conservation ethics among the island residents (Cabanban & White, 1981; Raymundo & White, 2004). The MPA concept was not only entirely foreign to the island population but it also limited their access to the marine resources available in the island, as well as put a stop on certain fishing practices which used methods and gears that were not only intensive but also destructive (*e.g. muro-ami*, fine gill nets, use of dynamite). After the MPA was finally established and accepted by the community on April 1985 (Deguit, 1989, p. 67), an ordinance legalizing its enforcement was passed by the Municipal Council of Dauin in 1986 (Ordinance No. 1) and subsequently amended in 1988 (Ordinance No. 8-88). The amendment was necessary not only to prevent future damage to the MPA due to inappropriate fishing gears but also to stop and regulate the influx of more non-resident fishers as well as tourist divers into the island.

A former community organizer (Deguit, 1989, p. 139) in Apo Island recalled that the members of Marine Management Committee (MMC) directly enforced the MPA regulations in the past. According to this report, the residents of the island—men, women, and children of age—cooperated in preventing illegal fishing within the protected area by outsiders and resistant local fishers as a voluntary act, convinced as they were of the economic potentials of the MPA. Members of the Civilian Home Defense Force (CHDF) were later assigned to guard the MPA along with the MMC officials. When Silliman University formally phased out from the island (Deguit, 1989, p. 140), constabulary personnel were assigned on the island to assist the local law enforcers in protecting the MPA. Presently, a Philippine National Police (PNP) station has been set up on the island not only to safeguard the residents and tourists but also to assist in the enforcement of MPA regulations.

Major changes in the management came when the whole island was proclaimed a protected landscape and seascape on August 9, 1994 pursuant to Republic Act 7586, otherwise known as National Integrated Protected Area System or NIPAS (Custodio & Molinyawe, 2001, p. 219). The management of the island as protected area was transferred to the Protected Area Management Board (PAMB). Formally organized in 1997, the newly-constituted management board composed of 10 multi-sectoral representatives coming from the

national, provincial, local and *barangay* governments and agencies, youth organization, people's organization on the island, and the academe (Bernardo, 2001; Raymundo, 2002). The Regional Executive Director (RED) Department of Environment and Natural Resources (DENR) is the designated chairperson of the PAMB (Custodio & Molinyawe, 2001, p. 217). The PAMB superintendent based in Dumaguete oversees the status and the management of the MPA in coordination with the *barangay* officials of the island.

Under the present management regime, the MMC, which played a major role from 1982 to 1993 (Russ & Alcala, 1996, p. 3), has ceased to be directly involved in the management of the MPA, as well as in the collection and disbursement of user's fees. Moreover, since the take-over by PAMB, the practice of paid employment introduced by the altered management practice has supplanted the old community tradition of volunteerism. Studies have indicated that the nationally-imposed management regime appears to have altered the perceptions of the residents who were accustomed to the community-based regime, creating a rift in their relationship with the current management. Writing about his observations in 2001, Bernardo observed that this development was "seen by some as a step backwards in terms of giving communities more authority, responsibility, and accountability over their local resources" (2001, pp.157-158).

Moreover, under PAMB, 15 percent of the 75 percent share from the collection of user fees is utilized for social services, infrastructure, and livelihood projects, while a major portion is spent for resource management activities and for the salaries of PAMB employees on the island. The remaining 25 percent is reserved for the national fund of NIPAS as mandated by law. But the current practice requires remitting the money first to the national treasury and only after is the share of Apo Island sent back. As a result, the usual bureaucratic delay in the release of the share of Apo Island has become a constant source of disappointment among the residents (Alcala, 2001, p. 81; Raymundo & White, 2004, p. 46)). It is feared that the delayed payment of honoraria of local PAMB workers, which continues to be a source of frustration particularly among sea wardens, will eventually adversely affect their enthusiasm to carry out their duties.

Lamenting the delay in the release of funds requested for 2004, the PAMB superintendent at that time commented that the Department of Budget and Management (DBM) seems uninterested in giving the community its due share (Amarado, 2004, p.11). During his fieldwork, Bernardo (2001, p. 114) already noted that a number of residents who wanted to abolish PAMB due to some unresolved management and financial issues have expressed a wish to return the management of the MPA to MMC. According to White *et al.* (2002, p. 9), a national law "can lead to problems when community efforts to manage MPAs are stymied by bureaucratic processes and practices." To remedy the problem, Congressman Herminio G. Teves of the third district of Negros Oriental, under which Dauin belongs, has introduced a bill proposing the automatic retention of the 75 percent share. But Congress has not yet approved the bill during the period of the study.

It is clear that the establishment and management of Apo Island MPA,

its progress over the years and later transmutation as a result of a national law, have influenced the way different generations of island residents relate with it, benefit from it, and evaluate its quality. Expectedly, the change in MPA management regime has produced varying reactions. Adults who find the direct community-management of the MPA more satisfying than the existing PAMB regime express some resentment. On the contrary, those who see more advantages from the latter management structure have favorable opinions. Such variable dispositions are expectedly reflected on their perceptions of the quality of management and condition of the MPA. Based on these observations, this study hypothesizes that the differing opinions of adult citizens of the island toward the MPA will exert a significant influence on the perceptions and attitudes of the younger members of the community, and subsequently their support of the MPA when they become adults. This assumption will be elaborated in the succeeding section.

THEORETICAL CONSIDERATIONS

The theoretical underpinnings of this study draw from the work of Berger & Luckmann (1967) on the role of effective socialization in the social construction of reality and from Howard & Hollander (2002) on the significance of shared rules and realities in the transmission of valued knowledge and appropriate behavior in particular contexts and circumstances. Putting all these together, this paper argues that the successful transmission of the value of an MPA through words and actions to the succeeding generations contributes to its institutionalization not simply as a biological tool but also as a cultural mechanism for food security in particular, and economic prosperity in general. This position is also anchored on the findings of a socialization study in the Philippines (Liwag *et al.*, 1998) on the impact of parental preferences, expectations, training, and modeling on the future behavior of children.

Since realities are socially constructed as results of distinctive social actions that individuals perform, humans are seen to be engaged in the perpetual cycle of the dialectic of creating the objective reality, socially and, in turn, internalizing these very created realities as their own, subjectively. In the case of an MPA, children may have only limited knowledge of its actual operation, its purpose or reason for being, or the benefits that it provides because they have no role in shaping or constructing it. Nevertheless, it is possible, following Berger & Luckmann's (1967) argument, that they will internalize the notion that MPA possesses a historical or objective reality. Therefore, they will be inclined to believe in and accept its legitimacy unless otherwise contradicted or deconstructed by social events. This is where socialization process in its broadest sense is at work.

It is a fact that the family and the significant others in the community are still the major social agents in the socialization of younger generations in closely-knit communities. As role models, these social agents can influence the attitude of children not only toward the social environment but toward the

natural environment as well. Therefore, adult role models in the family and the community are in the best position to influence future generations to support a project like the MPA. Following this line of thinking, fishers who have experienced the benefits of MPAs to subsistence fishing, their major source of livelihood, are likely to hand this idea down to their children whom they expect to also become fishers in the future (if they cannot get college degrees and work outside the island). They can set the examples for their children to emulate, for instance, impressing upon the young minds the value and importance of an MPA and influencing them to extend similar support to it for the sake of their own future.

However, the various meanings attached by adults to an MPA—as a fish "breeding or nursery" area but off-limit to fishing, or touristic spectacle for a fee—create a greater challenge in communicating these myriad interpretations to the young. This calls for a deliberate effort on the part of the adults to inform children about the real nature and purpose of an MPA especially when it is being opened to tourist divers but not to fishers. To do this effectively, adults need to harmonize first among themselves any conflicting definitions they have about an MPA. Only then will intergenerational transmission lead to a shared appreciation of an MPA's significance to community life and survival. This argument draws support from the view advanced by Howard & Hollander (2002, p.35) that a more sustained human communication and interaction is only possible when there is a minimum common understanding of shared realities. In the same light, Berger & Luckmann (1967, p.35) also reiterate the importance of the production of signs or symbols in the socialization process, which they call *signification*, to reach a unified understanding of a social construct.

Signification in the form of MPA regulations must be expressed in easily understandable language and must be seriously complied with by adults. Children can only internalize the value of a well-managed MPA if they have seen how the adult members of the community support it, work hard to maintain it, and enforce or comply with its regulations. The visible benefits that the community and their respective families enjoy can likewise increase the value of MPA in the eyes of children. These are all very important social considerations because children will later replace the adult members of a community. Whatever they have experienced or observed are retained in their memory or integrated with other knowledge consistent to them. Subsequently, they will generalize these into rules for behavior, and apply these rules to new situations or time (Howard & Hollander, 2002, p. 45). Hence, any attitudes and actions reproduced out of their experiences and observations at the present time are expected to influence their willingness to support MPA management in the future and eventually sustain it.

METHODS

The respondents of this study belong to different generations and accordingly

include grandparents, parents, and unmarried children (grandchildren in relation to the grandparents). The sampling procedure required that each set of respondents must belong to the same family tree so that the intergenerational flow of information could be properly delineated in the analysis and discussion. For this reason, the procedure started with the identification of the pioneering officers and members of MMC while the succeeding samples were randomly identified by lottery from the list of married or unmarried children of identified pioneering supporters (*i.e.* grandparents and parents as the case may be) who are still residing in the island.

The number of respondents from each generation was supposed to be 21, determined according to the power analysis table of sample size used by Katon *et al.* (1997, p.4) in an assessment of a coastal conservation project in Zambales in northwestern Luzon. However, the available number of respondents who qualified in the first generation category fell short of expectations. Completing the sets of respondents belonging to the same family tree was not possible because some members of the first generation were either deceased or no longer residents of the island. In the case of third generation, the prospective and the only available respondent in the household, who was a daughter, was still too young to respond to the interview and therefore could not be included in the list. Finally, a total of 58 respondents of this study were identified, among them 17 grandparents, 21 parents, and 20 grandchildren.

Fieldwork was conducted from April to December 2004 together with a research assistant. The methods used for data gathering were sample social survey and key informant interview. To generate preliminary and additional information not asked during the survey, key informant interview was conducted prior to, during, and after the conduct of the sample survey with the use of a guide. A semi-structured interview schedule consisting of one set of questionnaire specifically for the grandparents and parents and another set for the unmarried children was used in the sample survey. Perception ratings from 0 (lowest score) to 5 (highest score) about the qualities of MPA enforcement, compliance of stakeholders, biophysical conditions, and benefits constituted the bulk of the data. Quantifying perceptions about certain MPA management issues and situations enabled the respondents to make graduated assessment of what they have observed or experienced. This is an improvement of the dichotomous assessment of being present or absent (Pomeroy *et al.*, 1997; Pollnac & Pomeroy, 2005; Pomeroy *et al.*, 2005).

Grandparents and parents were asked to rate the state of the MPA in the past under MMC, at present under PAMB, and in the future (10 years from now). On the other hand, children-respondents were asked to rate only the present and future conditions because majority of them were either yet unborn when the MPA was established or were then too young during the time of the MMC management. Ratings were statistically compared to track differences in intergenerational perceptions and variations in the state of the MPA during different management periods. The test of difference (*t*-Test) and analysis of variance (ANOVA) have been employed to determine the commonalities and

differences in the responses or perceptions of respondents over time and across generations. The Pearson Product-Moment Correlation Coefficient Test (r) was used to determine the relationships of some selected variables. The level of significance employed in all the tests was set at 0.05.

PROFILES OF SAMPLES AND IMPLICATIONS

In terms of household membership, grandparents residing in separate houses were classified under first generation households. Unmarried children or grandchildren (in relation to grandparents), together with their parents, composed the second-generation households. One-third of the randomly sampled parents and children were females as compared to the almost equal representation among grandparents. Grandparents were on the average 66 years old while parents and children were 41 and 14 years old, respectively.

The presence of a complete elementary school in Apo Island and a high school in the mainland in recent years explains the difference in educational attainment across generations (a high school that started with the first year level was only opened in the island after the study was completed). Expectedly, children and their parents were better educated as noted in the number of years they attended school (7.30 and 6.95, respectively) than the grandparents (4.76). Improvement in school attendance also suggests a growing recognition of the value of education among the latter generations and implies greater prospect for future occupational and spatial mobility. This has also some implications on the number of children expected to remain in the island and who will be willing to sustain the management of the MPA that they will inherit from their parents in the future.

Majority of the sample second-generation households were nuclear (76.19%) while about half of the first generation households were extended family. Second-generation households have an average number of six members, which is higher compared to the first generation households with an average of four members. Couples in second-generation separate households have lived in the island for 18 years, compared to 42 years of first generation households. Variations in age and residency imply differing familiarity with the changes experienced by the island resulting from the establishment of MPA and the changes in its management. Results of the survey also showed that unlike the grandchildren, grandparents and parents still held beautiful memories of the time the MPA was directly managed by the community.

The number of households that have concrete houses provides evidence of long-term socioeconomic benefit of effective resource management in the island (Bernardo, 2001, pp. 63, 99). Unlike the older generation (41.18%), more than half of second-generation households (52.38%) have built concrete houses. The percentage of households on the island with concrete houses is also higher than the 14 percent of fishing households with concrete houses surveyed on the mainland (Oracion *et al.*, 2005a, p.11). Moreover, second generation households have more working age members who are economically productive than

first generation households. But it should be noted that 69 percent of the first generation households receive financial assistance from children who are working or residing outside the island. On the average, 25 percent of the total incomes of first generation households are derived from external financial assistance.

The survey revealed that 44 percent of those gainfully working are engaged in fishing and fish trading followed by other types of work (33.80%), and tourism-related work (22.54%). The other types of work include mat weaving, serving as sea wardens, *barangay* health worker, *barangay kagawad* (council member), farming, teaching, *nipa* shingle making, taking charge of the lighthouse in the island, and tending a *sari-sari* (variety) store. Those employed in the tourism sector work as dive boat operators, souvenir item peddlers, resort and dive shop workers, and entrance and user fees collectors for PAMB. More members of first generation households, particularly females, are involved in non-fishing related occupations, while majority of those of the second-generation households are involved in fishing and fish trading. Only 23 percent of members of all generations of households, and mostly males, have secondary occupation or other sources of income.

Fishing expectedly remains a primary source of subsistence for the community because of Apo Island's geographic peculiarities and marine biodiversity. On the other hand, employment in tourism enterprise is already growing relative to other kinds of work available on the island particularly among members of second-generation households. This trend is suggestive of the community's attitudes toward the growth of dive tourism in the island and the benefits they associate with it (Bernardo, 2001, p.106). Likewise, the arrival of more tourists into the island during the past decade and the exposure of younger generations to the spending behavior and lifestyle of tourists appeared to have influenced the life aspirations of the respondents. This is revealed by the data showing the kind of work children aspire to pursue and where they prefer to work when they become adults. Data show that their work aspirations are completely opposite to the current economic engagement of their parents. It is possible to predict that the growing spatial mobility will influence the population dynamics of the island in the future.

Among the samples of children or grandchildren, six females aspired to become teachers while eight other females wanted to become a computer specialist, doctor, stewardess, midwife, nurse, journalist, and office worker. Three males wanted to become engineers, another a policeman and the other a dive guide. Only one was content to become a fisher like his father. Because these work aspirations favored outside employment, 45 percent preferred to work abroad while 15 percent chose to work in Dumaguete. Nonetheless, 40 percent preferred to stay in Apo Island—particularly the females who aspired to be teachers. Higher pay and more job opportunities, along with finding the other places livelier, were the reasons given for the preference to work outside the island. This employment aspiration implies that the pressure on the island's resources will be minimized as a result of future out-migration.

Majority of the parents, however, would prefer to see their children remain on the island and take up residence there when they will already have their own separate households. Only about 29 percent will leave that matter for their children to decide. And except for two parents who wanted to seek better employment opportunities outside the island, the majority of those interviewed did not have any plan to migrate because they were content to stay on the island and have adjusted to the kind of life they have always known. This implies satisfaction with the opportunities provided by the current efforts of protecting and conserving the island's resources. Therefore, the children who will opt to remain on the island can sustain the management of the MPA. Their willingness to do so will depend largely on the degree of their exposure to and awareness of the value of the MPA to their survival on the island.

RESULTS AND DISCUSSION

PARAMETERS FOR RATINGS AND COMPARISON OF INTERGENERATIONAL PERCEPTIONS

General trends in MPA management. The parameters for ratings include MPA enforcement, compliance, biophysical conditions, and benefits. It is assumed that MPA sustainability is dependent upon how MPA regulations are being enforced by authorities and complied with by various resource users. Both parameters determine its biophysical qualities as well as the amount of benefits it provides to those involved in fishing and tourism. Although there are other measurable indicators of these parameters that can be compared over time to objectively quantify the probability of MPA to be sustainable, in this paper, however, only perceptions about these parameters by individuals across generations are utilized and quantified into ratings. Subsequently, ratings made by individual respondents are compared in order to measure how their experiences and interpretations of the realities surrounding these parameters are shared across generations.

Figure 1 gives a summary of assessments of the above management parameters during different periods based on the averages of combined ratings of grandparents, parents, and children (data computed from Tables A-1 to A-4). Statistically speaking, no significant differences exist in the comparison of ratings before PAMB, with PAMB, and the future. The high ratings over time suggest that the MPA is functioning well and still appears to be stable despite the apparent downward trends of the ratings. But it is still worthwhile to examine the contexts upon which the specific aspects of these parameters are being rated across generations in order to understand the implications of the observed downward trends to the whole management system of the MPA as well as to its sustainability. The downward trends in the ratings, based on the computed average of all the parameters of MPA management, suggested that some internal problems were festering within the community. These problems came out during the study. If not mitigated, these problems will worsen and later influence the attitudes of children toward the MPA.

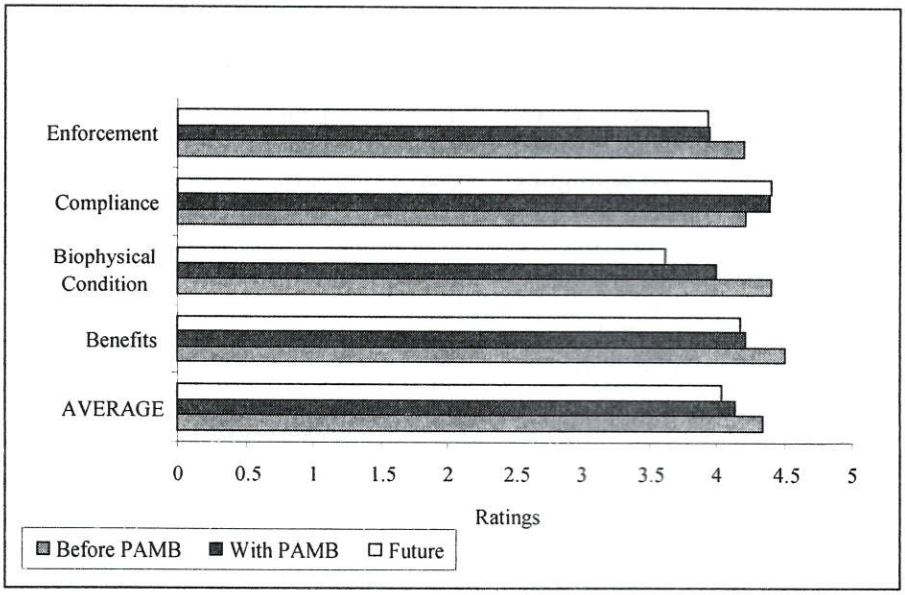

Fig.1. Summary of intergenerational perception ratings of MPA management parameters over time.

Enforcement ratings. Respondents were asked to compare MPA enforcement during different management periods. Statistical analysis shows that grandparents and parents perceived it to remain *highly effective* and *fair*. Children likewise favorably perceived the quality of enforcement at present and in the future. Although the results revealed declining trends in the ratings of enforcement by adult respondents, the differences in the perception rating across management periods are statistically insignificant (*refer to* Table A-1). The majority who are satisfied with the quality of enforcement over time explained that the sea wardens perform their duties well and are already receiving honoraria for these efforts. They also said that the MPA regulations and penalties under PAMB are more rigid and specific, especially in regard to prohibited activities as well as those allowed inside the MPA.

A closer examination of individual ratings, however, shows that those who were directly involved in or affected by MMC-managed enforcement rated the enforcement of MPA regulations at that time more favorably than the enforcement during the PAMB management. One respondent said that, "we were more active before because it was everybody's responsibility compared at present when there are already paid sea wardens." Thirty-four percent of grandparents and parents also reported some instances of unfair enforcement at present, involving violators who happen to be the political supporters of or related to the *barangay* captain. But the concerned village officials have of course denied the allegations and considered them as manifestations of political bickerings aimed at maligning the existing political leadership on the island. Meanwhile,

even if scuba diving inside the MPA is already allowed for a fee, there are still disgruntled fishers who considered this provision to be unfair to them, arguing that divers are also potential threats to the fragility of corals. Twenty percent clamored that since fishing is prohibited inside the MPA, the same restriction should apply to scuba diving.

Compliance ratings. Generally, grandparents and parents perceived the degree of MPA compliance by resource users specifically the dive operators, tourist divers, and local fishers to be statistically *stable and consistently high* over time. Children's ratings of the said resource users between present and future MPA management regimes reflect similar quality, but their ratings show improving trends in contrast with the ratings made by their grandparents and parents during the same periods (*refer to* Table A-2). Generally, there is a strong feeling that compliance is due mainly to the respondent's acceptance of the economic importance of the MPA and partly to their desire to avoid stiffer penalties if they breach regulations. Although intergenerational perceptions in general about MPA compliance by various resource users during different management periods do not differ significantly, the grandparents' perception ratings for local fishers were highest under PAMB management, followed by the ratings of parents and of children, respectively.

The seemingly consistent ratings for fishers, evident in low variances within generations of raters, demonstrate local bias. Higher variances are noted in the compliance ratings for tourist divers and dive operators, and imply the resentment of some locals against scuba diving inside the MPA and within their fishing grounds. The bias of adults for local fishers becomes clearer when the ratings for different resource users are compared. The differences are found to be statistically significant and show that the compliance of local fishers under MMC (ANOVA=5.45), under PAMB (ANOVA=4.33), and in the future (ANOVA=4.98) was rated highest by parents in comparison with other users (all have critical value of 3.16). The same has been rated to be also significantly highest by grandparents before (ANOVA=5.45) and under PAMB (ANOVA=3.68). However, grandparents' ratings of compliance by local fishers in the future are low, which may be due to their apprehensions that local support will diminish if the existing MPA management issues under PAMB remain unresolved (all have critical value of 3.19). In contrast, children's ratings did not differentiate the compliance of the three resource users now and in the future, which may suggest their openness to tourism. They perceived them to have satisfactorily complied with the MPA regulations.

Biophysical conditions ratings. Grandparents and parents perceived the fish and coral conditions within and outside the MPA after its establishment to have *significantly improved.* This response is reinforced by actual biophysical data (Bernardo, 2001, p.126). These conditions also appear to be *stable* despite the changes in MPA management after PAMB took the responsibility that was solely assumed by the community for more than a decade. The children's perception ratings of MPA biophysical conditions under PAMB do not also significantly differ over time (*refer to* Table A-3). But again, there are

indications of declining trends in the perceptions of all generations of raters, particularly when future predictions are compared with present and past conditions. The declining trends in MPA biophysical conditions may reflect the reasons behind the perceptions on the declining qualities of MPA enforcement and compliance as shown earlier.

There are three ways to view and interpret this development. First, is to look at it positively and to consider the average ratings to mean stable conditions that are believed to be due to the presence of the MPA (*see also* Raymundo & White, 2004). The biophysical data of Russ *et al.* (2004) from a longitudinal assessment of fish yield in the island will support this perception. This also gives weight to the argument that people's interpretation of the reality they have experienced must have scientific significance. Second, is to view the declining trend as an indication of the emerging dissatisfaction among the locals as a result of the change in management regime and the associated bureaucratic hassles experienced by the community with regard to the control of their own resources which they had enjoyed in the past. This is more evident among parents who registered higher variances in perception ratings about MPA biophysical condition under PAMB and in the future. And third, is the possibility that the coral reefs of Apo Island are already approaching their limit or carrying capacity due to fishing pressure and touristic activities outside and within the MPA.

Although the declining trend in MPA biophysical condition is not statistically significant to cause alarm, the fact that this perception is becoming evident across generations of raters is a good reason to take it seriously. Secondary data show that average daily fish catch per fishers had peaked in 1993 because of the contributions of the MPA, however, subsequent data show that this deteriorated thereafter (Bernardo, 2001, pp. 98, 158). Although the majority of respondents attributed this condition to the increasing number of tourist divers and fishers on the island, many also blamed PAMB's failure to effectively address the problem given its resources and powers. As mentioned earlier, a major portion of the PAMB collections from user fees is designated for administrative and management concerns of the MPA. Only a very small portion is allocated for community projects (Bernardo, 2001, p. 163) intended to augment the income of fishers as a result of reduction in fishing activities. In other words, if only they can continue gainful activities outside of fishing, the community would still be able to appreciate the economic benefits of the MPA, albeit indirectly, despite a reduction in fishing income.

Benefits ratings. The new economic opportunities brought in by tourism to the island added new meaning to the MPA and increased the number and kind of people being benefited by it (Bernardo, 2001, pp, 147-149). This becomes more evident when comparing perceived fishing and tourism benefits over time. The data show that generally there are *no significant* differences on either perceived fishing or tourism benefit over time and across generations of raters (*refer to* Table A-4). But the declining trend in fishing benefit cannot just be underemphasized because this perception is actually supported by ob-

jective data (*e.g.*, Bernardo, 2001, p. 159). So the consistency and pattern of perceived and actual decline in fishing benefit, but not in tourism benefit enjoyed by the locals, provides proof of the fear of the impending threats to the coral reefs on the island brought about by rapid growth of dive tourism (Bernardo, 2001, p. 67). Only the grandparents noted that tourism benefit had significantly increased because they have been on the island longer and were able to really feel the difference over time.

It must be admitted, however, that PAMB's take over of MPA management, including the appropriation of its revenues is also a positive development because it has generated more tourism revenues by imposing standard user fees (Calumpong & Cadiz, 2003). Under MMC management, no fixed amount of user fees was imposed and sometimes only donations were extracted despite the growing number of tourist arrivals into the island. Predictably, fishing benefit was significantly higher than tourism benefit during MMC management. The comparative ratings of grandparents (t-test=3.77, critical value=2.04) and parents (t-test=4.52, critical value=2.02) of fishing and tourism benefits under MMC show this trend. But under PAMB management, both older and younger generations perceived that tourism benefits have not only improved at par with fishing benefits but will continue to grow in the future as MPA added value. But the higher variances in tourism benefit ratings of adults compared to the ratings of children further indicate greater division in the appreciation of this particular benefit because of differential involvement in tourism business.

But despite the increase in tourism activities, the greater portion of tourism revenues went to resorts and dive operators (on the island and the mainland) than to the local community (Bernardo, 2001, p. 163), aggravating a situation already negatively affected by the reduction of fishery benefits. But even if an inequitable distribution of tourism income exists because of differences in the capital invested, several second-generation households, to some extent, have also benefited from tourism in the island. They are either working in the two resorts (one is owned by a foreigner married to a local woman) located on the island, operating boats for hire to tourists, selling souvenir items, renting out accommodations to visitors at their homes, and portering, among other menial jobs. Understandably, residents who are primarily dependent upon fishing have a reason to fear about the deleterious effects of the excesses of dive tourism (*e.g.*, too many tourists, too much night-time diving, littering, coral reef damage), if these are not effectively controlled, on the biodiversity of the island (Bernardo, 2001, p. 98).

SOCIALIZATION OF CHILDREN IN MPA VALUES AND MANAGEMENT

In this section, the focus is on the socialization of children about MPA values so they can effectively take over MPA management in the future. This is aptly termed as *anticipatory socialization* because this is intended for the adult roles that children will have to assume as members of the community. Expectedly,

children of various ages differ on the amount of MPA knowledge they have internalized. This appears because sources of knowledge varied while the modes of generating such knowledge were equally diverse. To fully appreciate the extent of Apo Island children's exposure to the MPA and how they are being socialized to its values and management, a comparison has been made using the data from the interviews of mainland children (Oracion *et al.*, 2005b).

Age differentials in MPA knowledge. Children aged 13 years old and above comprised the group that cited personal observation as their main source of information about the management and benefit of the MPA. Meanwhile, children who said they "do not know" about particular MPA issues were found among the 12 years old bracket and below. The data reaffirm the observation that older children tend to be more critical and are more able to form independent opinions on issues relative to the MPA. But when compared with the data among mainland children (Oracion *et al.*, 2005a, p. 34), it is noted that the number of children who were not knowledgeable about some MPA issues was lower among Apo Island residents than among the former because the MPA has been on the island much longer than it has on the mainland—the MPAs here were established only in mid-90s. Therefore, Apo Island children are more well-informed about the value and management of the MPA mainly because they have differential MPA exposure.

Socialization by whom. Although children cited personal observations as their number one source of information about the MPA off Apo Island, their parents expectedly play significant roles in socializing them about its management and economic potentials. From the findings, fathers, whose occupation as fishers takes them away from home for extended periods of time, did not appear to play a totally dominant role as information providers at home as much as mothers. Predictably, results show children citing their mothers as equally important sources of ideas about the MPA. This might be explained by the active role local women play in the fishing economy of the island as well as in the early development and management of the MPA (Oracion, 1998, p. 40; Oracion, 2000, p. 21), while at the same time managing their households and carrying out their domestic duties. The greater opportunity of wives to be involved in resource management provides them more knowledge of the nature of MPA, and puts them in a unique position to impart such knowledge to their children in the absence of their husbands.

Children also reported other sources of MPA information aside from their parents. At this point, the data about mainland children are again found helpful to appreciate the range of individuals the Apo Island children have as MPA information sources (Oracion *et al.*, 2005a, p.32). Comparatively, the number of information providers other than the parents reported by island children is twice greater than those of their counterparts in the mainland. The significant others other than parents that island children considered as agents of MPA information specifically include the *barangay* captain or village head (30.00%), classroom teachers (30.00%), sea wardens (15.00%), Silliman scientists (10.00%), friends (7.50%), *barangay* council members (3.75%), neighbors (2.50), and grand-

fathers (1.25%). Thus, the wider and more varied the sources of information about the MPA and the longer the years this has been functioning imply that MPA value is already more embedded among the younger generation of Apo Island than on those in the mainland.

The reason why children consider the *barangay* captain, Mario Pascobello, a vital source of information about matters relative to the MPA, which is not the case in the mainland, is not only due to his political position. The *barangay* captain, a college graduate, is also a strong advocate of marine environmental conservation. As a dive master himself, he is in the best position to describe the underwater world of the island to children. Moreover, he was one of those adolescents in the island who supported the initiatives of MCDP (Alan T. White, pers. com., May 28, 2001). He has also been cited in Alcala's (2001, p. 81) report for his role in convincing other nearby island communities to engage in protective conservation projects. As part of his advocacy work, he has traveled to parts of Southeast Asia to share his practical knowledge on community-based MPA. The *barangay* captain's life works illustrate how a child who is convinced about the values of an MPA can assume a significant role in advocating for its sustainability in his or her adult life and take up leadership roles to sustain it.

Socialization about what/which MPA values. Sixty-five percent of the children interviewed saw the MPA off Apo Island as a "breeding area" that sustains fish supply and provides the catch of fishers by its spillover effect. Twenty-five percent recognized its touristic value for becoming a present major attraction on the island, a source of revenue from entrance and user fees, and a provider of non-traditional employment to some locals. However, ten percent aging less than 10 years old do not seem to be familiar with the nature of an MPA. Foremost of the MPA restriction that is known to the children is fishing within the protected area because of its extractive nature. Findings also show that children have knowledge of MPA restrictions such as destruction of corals by stepping on them, extraction of marine organisms, and indiscriminate throwing of garbage. Similarly, they evinced familiarity with the imposition of user fees, the restrictions on motorized boats inside the protected area, and the designation of entry points for recreational diving and snorkeling.

However, the result showed that 55 percent of the children were not in favor of scuba diving inside the MPA—a sentiment that they must have learned from their grandparents (75.00%) and parents (57.14%), who blamed divers for disturbing fish habitat that consequently affected their catch. It is possible to speculate that this rating has also been influenced by the children's awareness that a majority of their elders wanted not only to restrict scuba diving activities outside of the MPA but to allow it only approximately 100 meters away from the fishing grounds (Raymundo, 2002, p. 7). Reports about tourist divers deliberately damaging bamboo fish traps (Maypa *et al.*, 2002, p. 211) may also explain the negative attitude of some fishers and their children toward dive tourism on the island.

Ironically, 80 percent of the children favored the construction of addi-

tional resorts on the island for economic reasons. By contrast, only 52 percent of the parents and 47 percent of the grandparents shared this idea. Expectation of tourism benefits is already seen to be higher among children. More importantly, this suggests the capability of older children (13 years old and above) to form their own opinions based on existing development potentials and the practical significance of these to their future. But at least four children also shared the view of adults about the effects of crowding in the island by tourists and the potential threats of too much diving on fish and coral conditions.

Methods and venues of socialization. Aside from personal observations, children reported receiving direct instructions about the MPA from their parents either at home or at the beach while waiting for fishers to arrive from sea (Plate 1). Other social agents were also reported giving information in this manner. This study has also noted that parents would sometimes bring their children along to attend assembly meetings and listen to the *barangay* captain speak or Silliman University scientists discuss about the MPA. Similarly, some children also identified their classrooms, particularly the lectures of their science teachers, as the venue for learning about the MPA—a learning opportunity that is not popularly cited by children in the mainland (Oracion, 2005a, p. 33). Casual conversations with friends in the neighborhood, or at the beach while swimming, or hanging around likewise provide opportunities for knowledge transmission among children. One child pointed out that he understood the value of the MPA better and the importance of obeying regulations after he had observed a sea warden apprehending a violator.

Plate 1. In the company of their mothers, children wait on the beach for their fathers coming home from fishing.

THE FUTURE OF CHILDREN'S SUPPORT OF MPA

In order to keep track and to appreciate children's future support of MPA, it is important to relate this with that of their parents and grandparents. It would be alarming if the children's rating of their prospective support of MPA in the future lags far behind the ratings of their parents and grandparents of the same parameter because this suggests that adults have failed to demonstrate or transmit MPA values to the younger generation. Similarly, looking into the factors that are significantly correlated with the self-rating of future support of children will give clues what management areas or issues have to be mitigated in order to ensure that these children will give the necessary support when they eventually replace the adults in the community. The observations and apprehensions of parents about the current attitudes of their children toward the MPA and its significance in their lives will further help in improving the ways by which pro-MPA behaviors can be encouraged.

Despite the perceived downtrends in MPA management, the self-ratings of MPA support of adults generally appear to be *high and stable* because no statistically significant differences exist when their respective ratings are compared during different management periods. However, while grandparents and parents' ratings had insignificant difference in their support when MPA management was yet under MMC (4.53 vs. 4.90, *t*-Test= 1.99, critical value= 2.02), the latter's support had significantly exceeded that of the former under PAMB (4.41 vs. 4.95, *t*-Test= 2.41, critical value= 2.02) and in the future (4.35 vs. 4.95, *t*-Test= 2.54, critical value= 2.02). The data also show that grandparents are more divided in their support ratings (having higher variances) compared to parents. This may mean that a few grandparents have already limited their involvement, either because of old age or to give way to the younger generation. However, it cannot also be denied that there are emerging resentments particularly coming from grandparents who were personally involved in the establishment of the MPA. Among this group of respondents, the "it was us who started it" feeling remains very strong as they reminisce those times they were yet given full control of their own resources. This development again proves the need to have a reserve of young MPA supporters.

So how does the self-rating of future support of MPA by children, which has a mean of 4.50, relate with the self-ratings of their grandparents and parents? Although the children's future support is already *very high,* it is still significantly lower compared to their parents' future support (4.50 vs. 4.95, *t*-Test= 2.42, critical value=2.02), but statistically similar with their grandparents' future support (4.50 vs. 4.35, *t*-Test=0.47, critical value=2.03). The extent of the future support expressed by children, which is somewhere between the support ratings of their parents and grandparents, reflects how they are exposed to two sources of opinions and role models. As significant others, grandparents and parents directly and indirectly mold children's MPA perceptions and attitudes and eventually their behavior toward the MPA. But why would the future support of children significantly differ from their parents with whom they

are directly exposed? One plausible explanation seems to be the aspirations of some children to work or reside outside of the island.

Children who were openly uncertain about supporting the MPA cited their future plans to work elsewhere as the reason for their hesitation. According to them, their absence from the island will not make it possible for them to give the support expected from them. These children strongly believe that they will have better life chances if they had college degrees and found employment outside of Apo Island. Nevertheless, since almost half of the children interviewed expressed preference to stay in the island, as shown earlier in their work aspirations, this ensures a future reserve of adults who will sustain the management of the MPA. Moreover, as this same group of children has expressed strong support for MPA, then the future of MPA sustainability is likewise assured.

However, other interrelated factors will ultimately determine the actualization of children's future support for the MPA as adults. The factors, which are significantly correlated with the future MPA support of children, include their personal observations on the present (r= 0.64) and future (r= 0.59) fishing MPA benefits, the fish and coral conditions in the future within (r= 0.53) and outside (r= 0.51) the MPA, and the future compliance of dive operators (r= 0.66). In other words, children who expect to benefit from the MPA in the future would sustain their support. Sustained fishing benefits, however, depend on improved quality of fish and coral within and in waters surrounding the MPA. These are management issues that rest upon how adults, particularly those holding political positions, seriously carry out the present task of enforcing and keeping the MPA functional so that it achieves its biodiversity conservation goals while providing tangible benefits to the community. Children, specifically those aged 13 years old and above, have already demonstrated the ability to grasp these issues.

Meanwhile, the majority of the parents who were firmly convinced of the future support of their children argued that their children have full understanding of the importance of MPA to the fishing economy and food security in the island. Part of the reason is that these children practically grew up with the MPA, hence they have learned to appreciate its value at a very young age. Given this exposure to MPA, parents believe that their children are very familiar with the environmental norms already prevailing in the island. In a way, they presumed that children have already developed a sense of ownership of the MPA. Data show that children who expressed strong support did not only appreciate how the MPA sustains fish catch, but also saw it as socially significant attraction in the island. They said it is psychologically boosting because, aside from tourists, several high-ranking personalities in the government, academe, and various non-government organizations from within the country and abroad have visited the island. These exogenous social factors can also contribute to the increase in enthusiasm of children to extend MPA support.

But two parents who were not happy with the current MPA management regime expressed contrary views about the prospect of children's future

support of the MPA and gave a zero rating to this particular parameter. One claimed that the changes in MPA management policies and the problems of appropriating its income could discourage their children to support it. Another cited the existence of the prevailing partisan politics in the island as a factor that could discourage the younger generation from becoming more active supporters of the MPA. Among the children respondents, two (aged 18 and 19 years old) also shared the sentiments expressed by these parents. Unlike the parents, however, the children were not discouraged by these factors from expressing support of the MPA (should they decide to remain in the island), seeing it instead as a valuable tool for conserving biodiversity and attracting tourists. Nonetheless, despite the preponderance of positive attitude toward the MPA among children, only time will tell if this disposition will persist when they grow up to be adults and become politically involved. As for the disgruntled parents, the zero rating they gave to the future support of their children might be purely a reflection of their own discontent and frustration over current MPA management. But this is a matter of speculation.

CONCLUSION AND RECOMMENDATIONS

Intergenerational perceptions reveal that the following management parameters of Apo Island MPA: (1) enforcement of regulations, (2) compliance by resource users, (3) the MPA biophysical conditions, and (4) its benefits have remained high and stable since the direct management by MMC up to the present PAMB management, and presumably to remain so in the future. These ratings of different management periods and across generations of raters suggest that intergenerational flow and sharing of MPA information are at work. Although the observed downward trends in the perception ratings of the state of MPA by adults during different management periods are not statistically significant, these have to be mitigated in order to continue reaping the rewards of the island's marine conservation initiatives. Not to be taken lightly, these downward trends must be viewed as manifestations of the emerging resentments of locals towards the take over of the current management of the MPA and of their island by a national law.

It is widely accepted that the example of elders can play a vital role in influencing the behavior of the younger generation, particularly in a small island community where everyone is related to each other either by consanguinity or affinity. Following this view, children may only be encouraged to support the MPA when they see that the adults are also showing enthusiasm and commitment to support the present management of this initiative. Grandparents and parents are information providers from whom children accumulate knowledge about MPA values which they later integrate into their personal lives. This knowledge could serve as the basis for developing a personal interest in supporting MPA management in the future. But the data also reveal that children's interests in MPA are not simply molded by the information provided by adults but also by their observation of specific behaviors of their parents

and other resource users. This is particularly true among older children who draw their knowledge more from personal observations rather than through direct instructions. It is possible that the tangible accomplishments of Silliman University and other conservation groups on the island's environment have also influenced children's enthusiasm.

It is possible to conclude that since almost half of the respondents among the younger generation expressed willingness to remain in Apo Island (while others aspired to work elsewhere, thus reducing pressure on the island's resources), the future of MPA and the sustainability of its management is more than assured. But the actualization of this necessary support depends on whether the MPA will still be in effect, remain untouched by legislative amendments as a result of political turnovers, or have the same meaning for the children in the future as it does at present. In the final analysis, as the older generation passes on, only the committed support of the younger generation will assure MPA management sustainability (*see also* Raymundo & White, 2004, p. 51). This paper does not deny the possible impact of other equally important factors on MPA management sustainability, but for the time being this is beyond the scope of this study.

This study suggests two vital areas to consider in mapping ways to ensure that the young generation will openly accept the challenge: first, by addressing the contentious MPA management issues and the political threat, both of which presently cause disquiet in the community; and second, by providing appropriate modeling and cultural reinforcements which will actively encourage the young to assume management in the future. For the second area, the role of school teachers in significantly reinforcing the positive attitudes toward the MPA that children got from their families of orientation cannot be overemphasized. Because every child necessarily spends some time here, the schools on the island, including and especially the recently-established high school level, play vital roles as strategically situated places where IEC (information, education, and communication) materials in the form of magazines, books, posters, and audio-video media about nature protection and conservation may be obtained and disseminated.

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ABOUT THE AUTHOR

Enrique G. Oracion, Ph.D. is a professor at the Sociology and Anthropology Department, Silliman University, Dumaguete City. He is the Director of the Research and Development Center.

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APPENDICES:
TABLES IN TEXT

Table A-1. Perception ratings of the effectiveness and fairness of MPA enforcement

ENFORCEMENT AND RATERS	PERIODS			VALUES		
	Before PAMB	With PAMB	Future	Computed	Table	Remarks
Effectiveness						
Grandparents	4.00 (1.00)	4.29 (0.85)	3.94 (1.14)	0.56	3.19	NS
Parents	4.25 (0.72)	3.90 (1.99)	4.00 (1.79)	0.43	3.16	NS
Children		4.06 (1.40)	4.25 (1.53)	0.44	2.04	NS
Computed value	0.82	0.31	0.28			
Table value	2.03	3.18	3.18			
Remarks	NS	NS	NS			
Fairness						
Grandparents	4.24 (1.07)	4.00 (1.63)	3.88 (1.86)	0.36	3.19	NS
Parents	4.29 (1.31)	3.52 (2.66)	3.29 (3.41)	2.33	3.15	NS
Children		3.94 (1.70)	4.25 (1.53)	0.70	2.04	NS
Computed value	0.14	0.65	1.86			
Table value	2.03	3.17	3.18			
Remarks	NS	NS	NS			

Figures inside parentheses refer to variances. NS= Not significant.

Table A-2. Perception ratings of the compliance of resource users with the MPA regulations

STAKEHOLDERS AND RATERS	PERIODS			VALUES		
	Before PAMB	With PAMB	Future	Computed	Table	Remarks
Dive operators						
Grandparents	4.47 (1.64)	4.35 (1.74)	4.25 (2.07)	0.11	3.20	NS
Parents	4.42 (0.48)	4.58 (0.59)	4.53 (0.71)	0.21	3.17	NS
Children		4.47 (0.37)	4.68 (0.34)	1.09	2.03	NS
Computed value	0.15	0.26	0.85			
Table value	2.03	3.17	3.17			
Remarks	NS	NS	NS			
Tourist divers						
Grandparents	3.53 (1.64)	3.82 (2.53)	3.75 (2.60)	0.18	3.19	NS
Parents	3.57 (2.26)	3.95 (2.35)	3.90 (2.09)	0.41	3.15	NS
Children		4.00 (1.41)	4.39 (1.08)	1.12	2.03	NS
Computed value	0.09	0.07	1.02			
Table value	2.03	3.17	3.17			
Remarks	NS	NS	NS			
Local fishers						
Grandparents	4.71 (0.35)	4.94 (0.06)	4.65 (0.74)	1.08	3.19	NS
Parents	4.62 (0.45)	4.86 (0.13)	4.86 (0.13)	1.69	3.15	NS
Children		4.55 (0.47)	4.60 (0.57)	0.22	2.02	NS
Computed value	0.42	3.58	0.83			
Table value	2.03	3.16	3.16			
Remarks	NS	S	NS			

Figures inside parentheses refer to variances. S= Significant. NS= Not significant.

Table A- 3. Perception ratings of fish and coral conditions within and outside the MPA

CONDITIONS AND RATERS	PERIODS			VALUES		
	Before PAMB	**With PAMB**	**Future**	**Computed**	**Table**	**Remarks**
Fish and corals within						
Grandparents	4.29 (0.47)	4.06 (1.31)	4.18 (1.78)	0.20	3.19	NS
Parents	4.60 (0.57)	3.79 (2.40)	3.67 (3.29)	2.45	3.17	NS
Children		4.30 (0.54)	3.80 (2.06)	1.39	2.02	NS
Computed value	1.28	2.85	0.51			
Table value	2.03	3.16	3.17			
Remarks	NS	NS	NS			
Fish outside						
Grandparents	4.29 (0.97)	4.00 (1.25)	3.94 (2.43)	0.39	3.19	NS
Parents	4.45 (0.58)	3.80 (2.17)	3.63 (3.02)	1.93	3.16	NS
Children		3.95 (0.89)	3.35 (2.03)	1.57	2.02	NS
Computed value	0.54	0.14	0.65			
Table value	2.03	3.17	3.17			
Remarks	NS	NS	NS			

Figures inside parentheses refer to variances. NS= Not significant.

Table A-4. Ratings of parents and children with regard to the fishing and tourism benefits of the MPA

BENEFITS AND RATERS	PERIODS			VALUES		
	Before PAMB	With PAMB	Future	Computed	Table	Remarks
Fishing benefit						
Grandparents	4.53 (0.51)	3.94 (0.81)	4.00 (1.25)	2.08	3.19	NS
Parents	4.48 (0.66)	4.29 (1.01)	4.33 (1.53)	0.19	3.15	NS
Children		4.39 (1.08)	4.22 (1.48)	0.44	2.03	NS
Computed value	0.21	0.99	0.37			
Table value	2.03	3.17	3.17			
Remarks	NS	NS	NS			
Tourism benefit						
Grandparents	2.88 (2.74)	3.94 (1.18)	4.18 (1.28)	4.66	3.19	S
Parents	2.86 (2.03)	3.57 (1.76)	3.62 (2.15)	1.93	3.15	NS
Children		4.10 (0.73)	4.20 (0.69)	0.38	2.02	NS
Computed value	0.50	1.22	1.56			
Table value	2.03	3.16	3.16			
Remarks	NS	NS	NS			

Figures inside parentheses refer to variances. S= Significant. NS= Not significant.