

ENVIRONMENTAL PROTECTION PRACTICES AMONG RESIDENTS OF HIGATANGAN ISLAND, NAVAL BILIRAN

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Abstract

This study on the Marine Protection Practices of Higatangan Island focuses on the actions taken by the 16 barangay officials and 69 residents in protecting the marine environment that is prone to destruction caused by tourism development of Higatangan, an island barangay of the municipality of Naval. This paper is a descriptive research study. Findings of this study showed that barangay officials and the community often practiced the necessary preventive measures and equally doing its part in protecting the marine environment of the island. To protect the marine biodiversity from destruction brought about by tourism development, the barangay officials and the residents already identified the areas that needed protection and has been vigilant in maintaining its biodiversity through strict implementation of the guidelines in keeping the reefs and coastal areas free from pollution and any causes of damage caused by tourist or tourism related activities. It is highly recommended that barangay officials with the assistance of the local government and concerned agencies should conduct activities and educational campaigns on marine life conservation.

Keywords: environment, marine biodiversity, practices, protection, tourism development

1. INTRODUCTION

As an archipelago, the Philippines is endowed with diverse marine resources, a lengthy 17 460 km of coastline and a wide 2 200 000 km² of water marine area, in order to sustainably maintain fish, catch promote tourism and preserve biodiversity (BFAR, 2005). Economically and socially, the country's marine resources are highly valued. According to the same source, in the year 2005, fisheries contribution is around 4.3% of the country's Gross Domestic Product (GDP) or about 22% of the country's total agricultural sector. However, through the years, these valuable natural resources have been continuously and rapidly declining, thus calling for immediate coastal resource conservation response. This study is about the efforts done by the community of Higatangan Island and its officials in protecting their marine resources from tourism development destruction.

Marine ecosystems are currently under constant threat and degradation as a result of natural events and human-induced activity. As a result, there is a greater demand for Marine Protected Areas (MPAS) as a means of safeguarding biodiversity and marine resources than ever before. Marine Protected Areas (MPAs) are areas of intertidal or subtidal territory, comprising overlaying seas and related fauna, flora, cultural, and historical qualities, that have been set aside by legislation or other valuable media to protect a segment or the entire surrounding ecosystem (Challenges for Marine Protected Areas and Examples for Addressing Them, 2015).

Recently, these MPAs have been recognized as a mainstream management tool structured to safeguard and possibly rehabilitate coastal ecosystems around the world. The intensified urgency with which coastal resource management practitioners now regard the necessity to conserve marine resources has steered to an upsurge in the number of MPAs being engendered and acknowledged on international level as a feasible means to safeguard resources at the ecosystem level (Rawlins, D.,2015).

Numerous local, national, and international agencies endorse MPAs as instruments in addressing the demands for long-term conservation of biodiversity and sustainable utilization of marine resources. (Threats to the Oceans and the Need for Marine Protected Areas, 2015). However, the determination of the long-term sustainability of marine life conservation has not been certain yet as it depends on the cooperation and monitoring of the communities involve, thus the need to conduct a study as to gain knowledge on how the marine protected areas remain safe is a necessity. Coastal marine habitats are being exploited beyond their capacity to recover as overfishing and destruction of coral reef, mangrove, seagrass and estuarine habitats continue. Reducing fishing pressure and habitat devastation in the Philippines frequently entails offering alternate sources of income. Tourism is rapidly supplementing or replacing fishing as a source of revenue for coastal towns.

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Thus, there is a growing realization that maintaining high biodiversity levels and pristine coastal areas is vital to attract and sustain tourism and to maintain healthy populations of fish for food security. Yet even the advent of tourism gives rise to additional conflicts in coastal resource use (White, Aliño, Meneses, 2006).

It has been claimed that tourism may be a goose that not only lays a golden egg but also fouls its own nest (Hawkins, 1982). Disruption of wildlife breeding cycles and behaviors - Tourism activities especially the mass tourism can disrupt the breeding cycles of wildlife and their natural behavior. Overdevelopment of facilities within the protected area can change migratory routes of wildlife for instance the wildebeests. Pollution may be a common feature and occurrence especially where general environmental rules and regulations aren't observed during a protected area. It is often air, water, noise, solid waste, and visual which will dent the credentials of a protected area as a preferred tourism destination (Van der Druim & Caalders, 2002).

Considering the abovementioned factors that will destroy the ecosystem of a tourist destination. Higatangan Island is a potential prospect of deterioration if marine protection measures will not be adopted by the community

2. OBJECTIVES

The study aims to determine the practices of the barangay officials and community in protecting the marine environment of Higatangan Island. Specifically, it seeks to:

1. To find out the socio-demographic profile of the Barangay Officials and residents of Higatangan Island in terms of:
 - Age
 - Sex
 - Civil status
 - Highest educational attainment
 - Years of service (for Barangay Officials only)
2. To determine the practices of the barangay officials and community in protecting the marine environment of Higatangan Island in terms of:
 - Protection of marine biodiversity from harm of tourism development
 - Involvement of the local government in educating the community on the importance of marine environmental protection
 - Establishment of community management system that monitors the marine protected areas

3. FRAMEWORK OF THE STUDY

The study considered the following theoretical and conceptual frameworks as the main and strong foundations in the due course of the preceding.

Theoretical framework

The study is anchored on Azjen's Theory of Planned Behavior. The Planned Behavior Theory grew out of the

Theory of Reasoned Action and it suggests that human behavior is influenced by three belief constructs: (1) beliefs about consequences; (2) expectations of others; and (3) things that may support or prevent behavior (Hammond et.al., 1995). A strong premise of the idea is that, at the conceptual level, links among influences on behavior and their effects are captured through one among the components of the model or relationships within the model. the appliance of this model to the present study is that, the model provides further explanations into the connection between knowledge, attitude, behavioral intention and actual behavior as they influence marine protected areas management practices.

Knowledge is not a specific component in the model but "attitudes are a function of beliefs" (Hanna, 1995); since in this context, beliefs refer to knowledge about a specific behavior. As a result, Azjen's paradigm allows for the depiction of cognitive elements via affective factors' influence on beliefs. When a person knows that he or she has control over a situation, for example, his or her behavioral intentions as well as his or her beliefs about the outcome of a certain behavior reflect this understanding.

Conceptual framework

The study focuses on the practices of the barangay officials and the community in protecting the marine environment of Higatangan Island, one of the tourist destinations and an island community that belongs to the municipality of Naval, Biliran. To determine the socio-demographic profile of the respondents, a semi structured research instrument was made that contains questions of the respondent's, age, sex, civil status, highest educational attainment, and years of service (for barangay officials only). To determine the perception of the respondents on the marine environmental protection practices, questions about the marine environment protection practices that the barangay officials and residents in terms of protection of marine biodiversity form harm of tourism development, involvement of the local government in educating the community on the importance of marine environmental protection and establishment of community management system that monitors the marine protected areas.

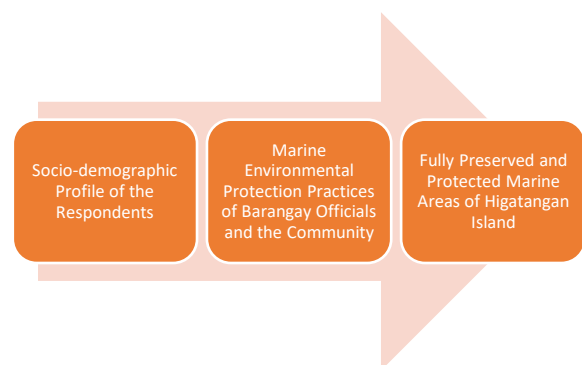


Figure 1 The Schematic Diagram of the Conceptual Framework of the Study

4. METHODOLOGY

Research Design

This study employed the descriptive survey research design. This is descriptive research classified as cross-sectional survey type for it involved the collection of data from selected respondents to attain the objectives of the

study. The study covers the present situation of the problem stated.

Research Locale

The study was conducted in Barangay Higatangan, an island community located 13.67 nautical miles from the municipality of Naval. It is one of the frequently visited island because of its tourists’ attraction particularly its diving sites and shifting sandbars.

Research Respondents

The respondents of this study were the 16 barangay officials including the Sangguniang Kabataan officials and 60 community residents who are directly responsible and involved in maintaining the pristine beauty of Higatangan Island.

Research Instrument

To obtain the needed data to answer all questions indicated on the statement of the problem, the researchers made use of a self-structured questionnaire. The questionnaire was divided into 2 parts. The first part pertained to questions on the demographic profile such as age, sex, civil status, highest educational attainment, and years of service (for barangay officials only). The second part pertained to questions about the marine environment protection practices that the barangay officials and residents in terms of protection of marine biodiversity form harm of tourism development, involvement of the local government in educating the community on the importance of marine environmental protection and establishment of community management system that monitors the marine protected areas.

Data Gathering Procedure

The researchers visited Barangay Higatangan after letter request of survey were approved and signed by parties concerned. A survey using a semi-structured survey questionnaire was conducted by the researchers. The questionnaires were distributed and retrieved after the respondents accomplished the responses.

Data Scoring

The following scoring was adopted in finding out the marine environmental protection practices of the barangay officials and the community of Higatangan Island.

Table 1 Data table

Point	Range	Interpretation
5	5.00 – 4.21	Always Practiced
4	4.20 – 3.41	Often Practiced
3	3.40 – 2.61	Sometimes Practiced
2	2.60 – 1.81	Barely Practiced
1	1.80 – 1.00	Not Practiced

Statistical Treatment Data

To determine the profile of the Barangay Officials of Barangay Higatangan in terms of age, sex, civil status, educational attainment and years of service, percentages were used to give information. To find the frequency of the marine environmental protection practices employed by the barangay officials and community, the study used the 5-point Lickert Scale.

5. RESULTS AND DISCUSSIONS

Profile of the Respondents

The socio-demographic profile of the barangay officials and residents of Barangay Higatangan were presented in Table 2.

Table 2 Demographic Profile of the respondents

	Barangay Officials		Residents	
	f	%	f	%
Age				
56 above	5	16.13	11	15.94
46 – 55	10	32.26	15	21.74
36 – 45	3	9.67	29	42.03
26 – 35	1	3.23	14	20.29
18 – 25	12	38.71		
Total	31	100	69	100
Sex				
Male	17	54.84	31	44.93
Female	14	45.16	38	55.07
Total	31	100	69	100
Civil Status				
Single	14	45.16	16	23.19
Married	16	51.61	39	56.52
Widow	1	3.23	14	20.29
Total	31	100	69	100
Highest Educational Attainment				
Elementary			13	18.84
High School			38	55.07
College	31	100	18	26.09
Total	31	100	69	100
Years of Service				
1 – 3 years 1st Term	19	61.29		
1 – 6 years 2nd Term	8	25.81		
1 – 9 years 3rd Term	4	12.90		
Total	31	100		

Table 2 presents the respondents’ profile (both the Barangay Official and residents of Barangay Higatangan) which includes the age, sex, civil status, educational attainment, and number of years in service.

Age. The result revealed that out of the 31 Barangay Officials, 12 or 38.71 percent belongs to ages 18-25 years old, 10 or 32.26 percent are ages 36-45, 5 or 16.13 percent are ages 56 above, 3 or 9.67 percent are ages 36.45, and 1 or 3.23 percent are ages 26-35. It implies that most of the barangay officials in Barangay Higatangan belongs to the young age and are Sangguniang Kabataan officials. On the other hand, of the 69 resident respondents, 29 or 42.03 percent belongs to 36-45 ages, 15 or 21.74 percent belongs to 46-55 ages, 14 or 20.29 percent belongs to 26-35 ages and 11 or 15.94 percent belongs to 56 and above ages. It implies that most of the resident respondents are in their Middle Ages.

Sex. The table revealed that out of 31 Barangay Official respondents, 17 or 54.84 percent are male and 14 or 45:16 are female. It implies that majority of the barangay officials are men. Meanwhile on the part of the resident respondents. 38 or 55.07 percent are female and 3 or 44.93 percent are male. It implies that most of the resident respondents are women.

Civil Status. The results showed that among the 31 barangay official respondents, 16 or 51.61 percent are married and 1 or 3.23 percent is a widow. It implies that most of the barangay officials of barangay Higatangan are married and with families. While among the 69 residents, 39 or 56.52 percent are married and 14 or 20.29 percent

are widow. It implies that majority of the residents of the island are married and have families.

Educational Attainment. The table revealed that 31 or 100 percent of the barangay officials are college graduate. On the part of the residents, of the 69 resident respondents, 39 or 55.07 percent have attained high school education, 18 or 29.09 have acquired college education and 13 or 18.84 have attained elementary education it implies that most of the residents are high school level or high graduates.

Years in Service. The table above showed that among the 31 barangay officials, 19 or 61.29 percent are in their first term which corresponds to 1-3 years, 8 or 25.81 percent are on their second term which is equivalent to 1-6 years, and 4 or 12.90 percent are on their third term which corresponds to 1-9 years. It implies that most of the officials are elected on their first term and has rendered service 1-3 years.

5.2 Practices of Barangay Officials and Community in Protecting the Marine Environment of Higatangan Island

This part presents the perception of the barangay officials and residents of Barangay Higatangan in the protection of biodiversity from harm of tourism development presented in Table 3 to Table 5.

Table 3 Protection of Marine Biodiversity from Harm of Tourism Development

	Indicators	WM	Description
1	Identified marine areas and zones that needs protection.	3.74	Often Practiced
2	Had set up no fishing and no swimming zones to protect the marine areas from activities that will directly and indirectly harm It (le coral rehabilitation areas).	4.01	Often Practiced
3	No fishing must be allowed in the marine protected areas except for traditional hook and line fishing methods, nets are only to catch small fish and will not damage the corals.	4.32	Always Practiced
4	No tourism activities are allowed in the marine protected areas except with a guide (eg. diving but must not break any corals in the reef).	4.21	Always Practiced
5	Boats are not allowed to drop anchor in marine protected areas.	4.24	Always Practiced
6	Maintenance of clean coastal areas must be enforced to avoid pollution caused by garbage thrown in the sea to destroy marine protected areas.	4.28	Always Practiced
AWM		4.13	Often Practiced

Table 3 reveals the results of the perception of the respondents on the protection of marine biodiversity from harm of tourism development. Among all the indicators, the statement ‘no fishing must be allowed in the marine protected areas except for traditional hook and line fishing methods, nets are only to catch small fish and will not damage the corals’ gained the highest mean of 4.32 that means the respondents always practice protection by not allowing fishing on marine protected areas except traditional methods to avoid damage of the corals. It implies that most of the residents were concern of the importance pf protecting the marine biodiversity that is essential to promote sustainable tourism.

On the other hand, a lower mean of 3.74 was given to the statement ‘identified marine areas and zones that needs protection’ that means the residents and barangay officials often practiced identifying marine areas and zones that needs protection. It implies that most of the residents have knowledge on the specific marine areas of the island that needed protection. An overall mean of 4.13 gained from all of the perceptions of the respondents on the protection of marine biodiversity from harm of tourism development which means the residents and barangay officials of the island often practiced the necessary preventive measures to protect their marine environment which is not just one of the sources of income of the island but to sustain also the booming tourism industry that made the Higatangan Island popular to local and international tourists.

Table 4 Local Government Orientation and Awareness Advocacy to Protect Marine Environment

	Indicators	WM	Description
1	BFAR, DENR officials had conducted seminars and orientation on the importance of marine environmental protection.	4.22	Always Practiced
2	BFAR, DENR had identified marine areas that needed rehabilitation and protection.	4.24	Always Practiced
3	BFAR, DENR had provided knowledge on what are the steps to do in protecting the areas identified as endangered and needed protection.	4.19	Often Practiced
4	BFAR, DENR had appointed focal persons to orient tourists on the areas that are off-limits.	4.10	Often Practiced
5	The barangay officials are then given manuals and handbooks to support their advocacy and a basis for implementing sanctions against violations committed by tourists	4.34	Always Practiced
AWM		4.22	Often Practiced

Table 4 reveals the results of the perception of the respondents on the activities of the local government unit in conducting orientation and awareness advocacy to protect marine environment. Among all the indicators, the statement ‘the barangay officials are then given manuals and handbooks to support their advocacy and a basis for implementing sanctions against violations committed by tourists’ gained the highest mean of 4.34 which means the local government unit always practiced the conduct of marine protection orientation and advocacy in the island community. It implies that the local government unit has done its part in raising awareness to the island community of Higatangan the importance and benefits of a well-preserved marine environment to sustainable tourism.

However, the statement ‘BFAR, DENR had appointed focal persons to orient tourists on the areas that are off-limits’ gained a lower mean of 4.10 that means the local government agencies often practice the appointment of focal persons to conduct orientation of tourists of what are the only areas accessible to activities. It implies that there are focal persons assigned in Barangay Higatangan who takes charge of providing knowledge of what are the only areas accessible to tourism activities.

An overall mean of 4.22 sums up all the perceptions of the respondents in the assessment of the involvement of the local government of raising awareness and advocacy in

protecting the marine environment of Barangay Higatangan which means the agencies involved always practiced the activities to ensure the marine environment of the island is safeguarded from the destruction brought about by tourism activities.

Table 5 Establishment of Community Management System that Monitors the Marine Protected Areas

	Indicators	WM	Description
1	Fees of tourists and visitors are set aside to support the maintenance of the marine protected areas.	4.15	Often Practiced
2	Community orientation was done to inform the people of their role in maintaining the marine protected areas safe from any damaging activities of tourists.	4.14	Often Practiced
3	There are Bantay Dagat deputized for coastal law enforcement in the island.	4.27	Always Practiced
4	There is an assigned police officer in the island who has full authority to enforce the laws that will protect marine life of the island.	4.14	Often Practiced
5	Establishing regular embarkation points facilitates collection of entrance fees allows boat queues for passenger pickup and provides a central point for boat inspections and communication of MPA regulations.	4.13	Often Practiced
6	Local community watch groups are formed that helps in enforcing laws against tourists who will commit violations.	4.11	Often Practiced
7	Educating the people in the island on the dangers brought about by tourism activities and development to the marine ecosystem the island was done by the barangay officials to raise awareness on the need to protect the island's natural marine habitat	4.06	Often Practiced
8	Tourist guides from the community are appointed by the barangay with incentives to bring tourists to destinations that are allowed and orient them on the rules and regulations of the island.	4.15	Often Practiced
9	Regular monitoring on the coastal areas is done to ensure cleanliness is maintained and pollution could be avoided.	4.11	Often Practiced
10	Status meeting are conducted to know the problems and updates on the management of marine protected areas by barangay officials and community core group.	4.11	Often Practiced
AWM		4.12	Often Practiced

Table 5 provided inputs on the perception of the respondents on the actions taken to establish community management system that monitors the marine protected areas of Barangay Higatangan. Of all the indicators, the statement 'there are Bantay Dagat deputized for coastal law enforcement in the island' garnered the highest mean of 4.27 that means they always practiced the protection of marine environment through the supervision and patrol of the Bantay Dagat deputized officers. It implies that there

are Bantay Dagat officers who guards the coastlines and marine protected areas against violators and constantly monitor all areas that are identified as marine protected areas.

On the other hand, a lower mean of 4.06 was given to the statement 'educating the people in the island on the dangers brought about by tourism activities and development to the marine ecosystem the island was done by the barangay officials to raise awareness on the need to protect the island's natural marine habitat' that indicates the barangay officials often practiced the provision of knowledge to the community of the advantages of protecting the marine environment. It implies that officials of Barangay Higatangan had conducted educational forums on the importance of marine environment protection and preservation.

A total mean of 4.12 resulted from all the perceptions of the respondents on the establishment of community management system that monitors the marine protected areas of the island that reflects that there is an existing and established community monitoring system that provides supervision over the marine protected areas of the island and they often practiced appointing and designating people to assignments related towards protection of marine environment. It implies that monitoring through a community management system has been established that maintains the safety of the marine protected areas of the island community of Barangay Higatangan.

6. CONCLUSION AND RECOMMENDATION

Conclusion

Based on the findings of the study, the following conclusions were drawn. To protect the marine biodiversity from destruction brought about by tourism development, the barangay officials and the residents already identified the areas that needed protection and has been vigilant in maintaining its biodiversity through strict implementation of the guidelines in keeping the reefs and coastal areas free from pollution and any causes of damage caused by tourist or tourism related activities.

Recommendations

Based on the findings and conclusion of the study, the following recommendations are forwarded:

1. Barangay officials who are involved in the marine environmental protection program of the island, must belong to ages 18-25 to ensure that they are able to conduct the activities in order to maintain a sustainable marine environment that is essential factor in the tourism industry.
2. Promote responsible tourism through teaching tourists proper waste disposal. Strict sanctions and penalties on violations will be imposed on tourists who throws plastic and garbage into the sea or litter in the coastal areas. Also, putting barriers or buffers on restricted areas must be done to avoid tourists to further explore on marine protected areas.
3. Further studies should be conducted by the local government unit in collaboration with the barangay official to discover if the present marine

environmental protection activities were effective. Moreover, formulate new strategies to enforce preservation of marine life for tourism sustainability.

4. Establishment of an authorized docking area for boats that arrives in the island. All boats must not be allowed to dock in any areas of the island. Tourist who wants to enjoy the beauty of the island must use public transport to reach beaches in the island to avoid destruction of coral reefs because of boat anchors.

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