Silliman Journal

Integrated Coastal Management Issue

A Journal, Published Twice Yearly,
Devoted to Discussion and Investigation
in the Humanities, Social Sciences, and Sciences

Volume 44 No.1 January - June 2003

ISSN 0037-5284

SILLIMAN JOURNAL

Volume 44 Number 1, January - June 2003

The Silliman Journal is published twice a year under the auspices of Silliman University, Dumaguete City, Philippines. Entered as second class mail matter at Dumaguete City Post Office on September 1, 1954.

ISSN 0037-5284

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Imaging by Philip Van Peel
Photo credits: ICM Sustainability Research Project
Cover and book design by Philip Van Peel

Cover photo: Sunset, Municipality of Hinigaran & SU Beach Fishers

Printed by SU Printing Press, Dumaguete City

SILLIMAN JOURNAL
Vol. 44 No.1 2003

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The Silliman Journal welcomes contributions in all fields from both Philippine and foreign scholars, but papers should preferably have some relevance to the Philippines, Asia, or the Pacific. All submissions are refereed.

Articles should be products of research, taken in its broadest sense; a scientific paper should make an original contribution to its field. Authors are advised to keep in mind that Silliman Journal has a general and international readership, and to structure their papers accordingly.

Silliman Journal also welcomes the submission of "Notes," which generally are briefer and more tentative than full-length articles. Reports on work in progress, queries, updates, reports of impressions rather than research, responses to the works of others, even reminiscences are appropriate here. Book reviews and review articles will also be considered for publication.

Manuscripts should conform to the conventions of format and style exemplified in this issue. Whenever possible, citations should appear in the body of the paper, holding footnotes to a minimum. Documentation of sources should be discipline-based. Pictures or illustrations will be accepted only when absolutely necessary. All articles must be accompanied by an abstract and must use gender fair language. All authors must submit their manuscripts in duplicate, word-processed double-space on good quality paper. A diskette copy of the paper, formatted in MSWord 6.0 should accompany the submitted hard copy.

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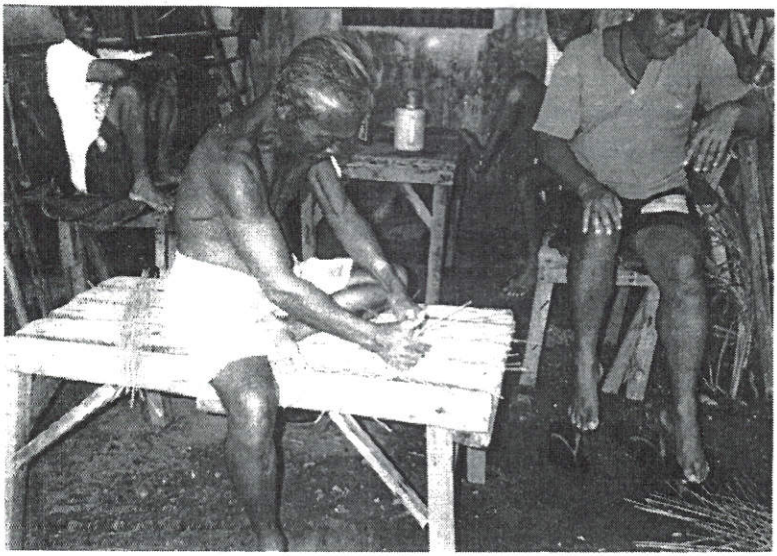
EDITOR'S NOTES



"There is an implicit principle of human behavior important to conservation: the better an ecosystem is known, the less likely it will be destroyed."

— Edward O. Wilson, Biologist, *The Diversity of Life*

"In the end we will conserve only what we love; we will love only what we understand, and we will understand only what we have been taught."

—Baba Dioum, Senegalese Conservationist

"When I reflect that one man, armed only with his own physical and moral resources, was able to cause this land of Canaan to spring from the wasteland, I am convinced that in spite of everything, humanity is admirable."

— Jean Giono, *The Man Who Planted Trees*

"If you are a poet, you will see clearly that there is a cloud floating in this sheet of paper. Without a cloud there will be no water; without water, the trees cannot grow; and without trees, you cannot make paper. So the cloud is in here. The existence of this page is dependent upon the existence of a cloud. Paper and cloud are so close."

— Thich Nhat Hahn, Zen Buddhist monk, poet, social activist, *Engaged Buddhism*

IN THIS ISSUE: While researching for some background materials for these editorial notes, I ran into this wonderful story included as part of a lesson on the environment for children. Originally written in French by Jean Giono and entitled "L'Homme qui plantait les Arbres" or "The Man who Planted Trees" this story is about a simple shepherd who lived in a desolate part of the ancient region where the Alps plunge down into Provence in southern France. Made barren and treeless by centuries of charcoal making, the place as, Giono described it, was one of unparalleled desolation and what remained were only vestiges of life—"five or six houses, roofless, gnawed by wind and rain, the tiny chapel with its crumbling steeple, and all life had vanished." Here, according to Giono, "the wind blew with unendurable ferocity and growled over carcasses of the houses like a lion disturbed at its meal." Finding himself in the midst of this desolation, he thought he glimpsed in the distance "a small black silhouette, upright, and took it for the trunk of a solitary tree. [He] started toward it and saw it was a shepherd. Thirty sheep were lying about him on the baking earth."

This shepherd was Elzeard Bouffier, a man of great simplicity and determination. Bouffier, having lost his wife and son, retreated to a remote and desolate part of France. "It was his opinion that this land was dying for want of trees". So, alone with his dog and his sheep, he commenced his life work - the steadfast planting of one hundred acorns each day. Once arid, ravaged by relentless winds, and forsaken by people, the region was brought back to life by Bouffier's trees. When he passed away at the age of 87, this wild, barren land in which he lived was a thriving green landscape of towering oak and beech beginning to teem with birds and other wildlife while the whole countryside was aglow with health and prosperity. In tribute to this remarkable character, Giono wrote: "When I reflect that one man, armed only with his own physical and moral resources, was able to cause this land of Canaan to spring from the wasteland, I am convinced that in spite of everything, humanity is

admirable. But when I compute the unfailing greatness of spirit and the tenacity of benevolence that it must have taken to achieve this result, I am taken with an immense respect for that old and unlearned peasant who was able to complete a work worthy of God."

This story is a record of the enormous contribution that one person can make to the earth. In his wonderful story of Elezeard Bouffier, Giono seems to have intended to inspire a reforestation program that would renew the whole earth. It is reported that Giono later wrote an American admirer of the tale that his purpose in creating Bouffier "was to make people love the tree, or more precisely, to make them *love planting trees*."

The story of the Elzeard Bouffier brings to mind a cherished story of my childhood, that of the legendary Johnny Appleseed whose dream was for a land where blossoming apple trees were everywhere and no one was hungry. It seems to me that here is a story which can be read as a parable for our time. Elzeard Bouffier is the archetypal caretakers of the environment in whose world it should be possible to read the metaphor for the kind of world we are shaping for ourselves. Like Bouffier, we live in a world under threat by human thoughtlessness, among a community largely unmindful of the destruction of nature around us, and for the most part, ignorant of, if not blind to the cost of its loss in terms of the richness and dignity of our human life. But if there was something fundamentally unique about Bouffier, it was his keen sense of awareness of the destruction around him and his equally keen resolve to do something about it. Over the course of thirty years, laboring in peace, without interruption, and in complete anonymity, Bouffier transformed the landscape. Impelled only by a strong conviction and undaunted by the scale of his task, he never needed any permit from the government or any grant from any funding institution. Commenting on the achievement of Bouffier, Giono said: "When you remembered that all

this had spread from the hands and the soul of this one man, without technical resources, you understood that men could be as effectual as God in other realms than that of destruction."

This story is not only about a man who plants trees, it is about how each of us can make a difference in the world by every small action of love or conviction. If we do not attach a need for recognition or money to our endeavors, they feed the spirit and health of the world. The point of this parable then is to draw awareness to the ethical and moral questions engendered by the environmental crisis.

In her Afterword to this story, Norma L. Goodrich recalls Giono telling her: "You know, there are also times in life when a person has to rush off in pursuit of hopefulness." In the face of continuing depletion of life's diversity at a rate our imagination cannot even begin to grasp fully or easily, the pursuit of hopefulness underlies much of the efforts of conservation groups and individuals to do something, as Bouffier has done to save, this plundered planet. So we have begun to see signs of change. States, institutions, groups, and individuals are at the forefront of efforts to recover as much of what has been lost, consciously supporting the maintenance of diversity in myriad and varying ways. As a result, there is a growing awareness for the significance of the loss of diversity in our forest and seas, in our mountains and rivers, among our wildlife, both flora and fauna. An even greater awareness of the importance of what we have lost, and what we continue to lose is becoming more and more evident among key individuals in both government and private sectors in rich and poor countries alike, and among the community as a whole.

Even more encouraging is the appearance of new opportunities and new initiatives aimed at allowing Nature

regain lost grounds. One such initiative is the integrated coastal zone management or ICM. A sub-field of environmental management, Integrated Coastal Management (ICM) has been engaged in coastal management for food security, poverty alleviation, conservation of biodiversity, and economic development for the last three decades. But the "Earth Summit" in 1992 and its Agenda 21, in particular Chapter 17 on "Protection of the Oceans, All kinds of Seas, including Closed and Semi-closed Seas, and Coastal Areas and the Protection, Rational Use, and Development of their Living Resources" as well as the subsequent international fora on the environment have provided much of the impetus for much of the current interest in ICM. In all these meetings, ICM has been hailed as the appropriate approach for managing the diverse problems of coastal areas, from the pressing problems of coastal pollution and habitat degradation, allocation of coastal resources, conflicts between coastal interests to the long term-implications of changing sea level.

According to a UNESCO report[1], more than half of the current global population, or roughly 3.2 billion people, live on or within 200 kilometers of a coastline. That number is expected to increase by 2025 to 6.3 billion or 75% of then global population. With more than a note of irony, the report cites the fact that it is precisely the great wealth of the coastal areas—whether in terms of fishing, tourism, international trade, or natural resources—on which lies the seeds of its own destruction. It is largely for this reason that integrated coastal management—defined as planning that seeks to balance development needs, the livelihood of local residents, and conservation—has been steadily gaining recognition.

Yet, the report laments that despite ICM's three decades of existence and rapid increase in coastal management programs in over 130 countries, there

remains little consensus on what works, what fails, and why. The questions that continue to trouble scientists and practitioners of ICM are myriad and diverse: "What are the biological, economic, and socio-political parameters that matter most to those concerned with a given coastal area? What are the trends over time? What is natural and what is due to human influence?" Unless these questions are answered and how they relate to (often changing) public expectations is defined, ICM practitioners, the report stressed, will find it hard to know what tools to use to reach the social objectives for these areas - whether they are oriented towards conservation or development. In the field of ICM, according to this report, not only are there few agreed "best practices, there also no clear mechanisms for determining what makes a practice "good", "wise", or "best".

Compounding the problem, according to this report, is the failure of coastal managers to demonstrate the benefit of integrated coastal management, or communicate what it involves to the people to whom it matters most - the coastal residents. Part of the difficulty stems from the fact that much of the available information on ICM is written in a general, conceptual language that governments, decision-makers, and local communities, least of all, have problems understanding, let alone apply the ICM concepts. Consequently, it has been recognized that there are significant information barriers and other inequalities that make the application of ICM even in its most rudimentary forms a constant challenge. Efforts at linking ICM knowledge to specific programs of action through pilot projects, university teaching, and research initiatives are presently being undertaken.

Precisely for this reason the Integrated Coastal Management Sustainability Research Project has been initiated. A two-year undertaking, it has as its main objective the study, in a multidisciplinary manner, the sustainability of

ICM activities in the Philippines and Indonesia after formal project termination. Its other aim is to assist ICM projects currently being undertaken in these two countries and to contribute to the improvement of human capacities within the involved institutions. The articles collected in this volume, results of the ICM research project, record the findings of the team regarding factors that influence ICM sustainability. A unanimous conclusion shared by these reports is the vital role of the local community in ensuring the sustainability of ICM projects.

As this conclusion suggests, there is a need to allow nature back, and to bring it back into people's lives. Without the restored contact, the concern people feel for the environment will lack the personal connection that enables them to feel as well as understand. According to Baba Dioum, the Senegalese conservationist: "We will only care for what we love; we will only love what we can understand; we will understand only what we are taught." This suggests the ability to learn, and with that learning, the ability to instigate meaningful changes that will make a difference not only for humankind, but for all the other species in this planet.
In the words of Stephen Kellert:[2]

> Winning the hearts and minds of the general public and its leadership will be a necessity. People will need to be informed and convinced of how much humanity continues to depend on intimate, diverse, and satisfying affiliations with nature and living diversity. People will need to rekindle their capacity for experiencing wonder, inspiration and joy from contact with the natural world and its many creatures.
>
> Education and ethics, therefore, will be as important as science, policy, and management in attaining this goal. A knowledgeable and ethically responsible

> citizenry—environmentally literate and morally concerned—will be an indispensable ingredient in securing and restoring the integrity and health of the biosphere.

In a similar vein, Paul Ehrlich, believes that "only an intensive effort to make those improvements and substitutions, combined with a revolution in attitudes towards other people, population growth, the purpose of human life, and the intrinsic values of organic diversity, is likely to prevent the worst catastrophe ever to befall the human lineage. Curiously, scientific analysis points towards the need for a quasi-religious transformation of contemporary cultures. Whether such a transformation can be achieved in time is problematic, to say the least."[3]

Clearly, no less than a radical rethinking of our relationship with nature and the environment can save this planet for future generations. In publishing these reports. Silliman Journal joins the ICM Sustainability Research Team along the path of Jean Giono and Baba Dioum.

Ceres Pioquinto

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[1] Ian M. Dutton, Coast to Coast: Extract from UNESCO Sources (131) published February, 2001, page 10 - 11

[2] Stephen Kellert, *The Value of Life: Biological Diversity and Human Society*. Island press, 1996

[3] Paul Ehrlich, 1988. The loss of diversity. Causes and consequences. In E.Wilson, *Biodiversity*. National Academy Press, Washington D.C., 21-27

Preface

Unfortunately, few integrated coastal management (ICM) processes are continued after external financial and technical support is terminated. This is a major concern of both practitioners and donors involved in ICM.

The Integrated Coastal Management Sustainability Research Project, a two-year research project, has been investigating the factors influencing the sustainability of ICM processes in the Philippines and Indonesia after formal project termination. In the Philippines, research has demonstrated that economic incentives, institutional design, legal frameworks, and social equity are important issues, among others, influencing ICM process sustainability. Comparative research in Indonesia is demonstrating that similar factors have bearing on ICM process sustainability in other contexts.

Researchers in the Philippines considered seven sites where ICM projects had formerly existed, but were already phased out. Two sites (Mabini, Batangas and Bais Bay, Negros Oriental) were studied by all research teams: institutional, socio-economic, socio-cultural, legal, tourism, and bio-physical. The remaining five sites were included only in the socio-cultural survey research.

This theme issue begins with a presentation of background information from the two case study sites. These are followed by institutional analyses at the national and local levels of case study sites which consider historic and contemporary developments using document and interview analysis. Socio-cultural and socio-economic analyses statistically explore factors associated with ICM sustainability. The legal research is based on a review of legal mechanisms and a detailed examination of enforcement of established laws and regulations in case study sites. The tourism study considers the details of an issue that emerged out of preliminary research—the derailing effects of stakeholder conflict surrounding community-based MPA implementation. Finally, the bio-physical research considers both the collection and use of data over time and the actual impacts of ICM on the environments of the case study sites.

This publication was made possible through support provided by the David and Lucile Packard Foundation (grant # 2000-14652) and the National Science Foundation (grant #DGE-0132132) as part of the Integrated Coastal Management Sustainability Research Project. The opinions expressed herein are those of the authors and do not necessarily reflect the view of the David and Lucile Packard Foundation or the National Science Foundation.

Patrick Christie

INTRODUCTION TO THE MABINI -TINGLOY CASE STUDY SITE

Leila Sievanen

Physical Characteristics

Location. The Batangas case study site includes the coastal areas along Maricaban Strait. This strait is defined to the south by Maricaban Island, to the north by Calumpan Peninsula (Luzon Island). The strait opens to the north into Balayan Bay and to the east into Batangas Bay (Figures 1 and 2, next page).

Terrestrial area. The shoreline along the strait is either bluff or sand beach. Steep hills rise immediately to a high of approximately 200-300 meters. These hillsides are frequently limestone coral deposits. Much of these hillsides are covered with nipa, bamboo, cogon grasses (*Imperata sp.*), or agro-forestry ecosystems (UPMSC 1979). On Tingloy Island, large areas of coconut farms are common. Large-scale industrial plantation agriculture is uncommon in this area.

Aquatic area. According to Salamanca et al. (2002) and UPMSC (1979), wind-induced currents move water from Batangas Bay to Balayan Bay. The area has relatively narrow reef flats, dropping off to a depth of approximately 200 meters in the deepest sections (Salamanca et al., 2002).

Coral reefs cover much of the area. Coral diversity is quite high with a total of 290 species and 74 genera of hard corals found in the area (Fenner 2001). This diversity is higher than 5 other sites surveyed by Fenner, including Tubbataha Reefs. *Acropora, Montipora, Fungia, Pavona,* and *Porities* are the dominant coral genera in the area (Fenner, 2000). Seagrasses and mangroves are not found in the area.

Fish diversity is similarly high with 481 species in 53 families (White et al., 2001). Small, non-food fish such as damselfish

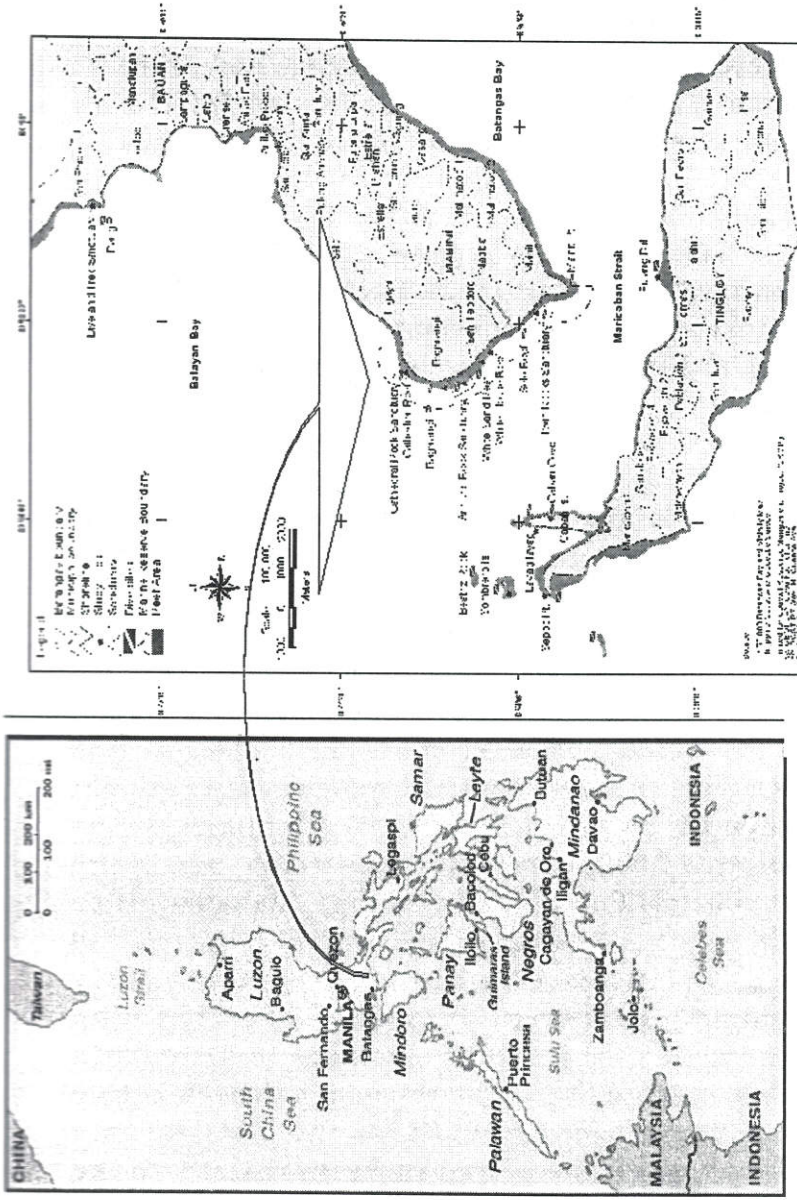

Figure 1

Figure 2

(*Pomacentridae*), anthids (*Serranidae*) and wrasses (Labridae) are the most numerous indicating that fishing pressure is high for predatory fish.

Socio-economic conditions

The area of Mabini, the 4th class municipality that defines the northern shore of Maricaban Strait, is 4,296 hectares with an estimated population of 37,474 (National statistics office 2000). The following barangays are included in the study: San Teodoro (pop. 1557, 336.9 ha), Bagalangit (pop. 2057, 348.4 ha.), Balanoy, and Solo (pop. 2626, 339.5 ha.). With a 3.6% growth rate for the southern Tagalog region, the highest in the Philippines, the population of the region is expected to double in 19 years (National Statistics Office 2000).

The municipality of Tingloy, the municipality on Maricaban Island that defines the southern shore of Maricaban Strait, has a total area of 3,135 acres with a population of 17,028 (National Statistics office 2000). Santo Tomas is the only barangay represented in this study (pop. 1663, 198 ha.).

According to a socio-economic survey of the area, the average annual income is PhP 53,478 (Telesis 1994). This is significantly lower than the national average of PhP 83,161 in 1994 (Commission on Population 2000). Currently the national average is approximately PhP 144,039 (National Statistics office 2000).

The dive tourism economy is rapidly developing in this area. Presidential Proclamation No. 1801 (1978) formally declared this area as a tourism zone. While dive tourism has been active in the area since the 1970s, in the last 10 years no dive resorts are found in Tingloy despite the

existence of many of the best dive sites on that island's coral reefs.

Based on data from 1994, approximately 22,870 divers visited the Mabini area that year (Haribon 1994). The vast majority of the divers that were surveyed as part of this study were Filipinos from Manila with an average age of 33 and a monthly income of 41,515 pesos/month (significantly higher than the average PhP6,930 in 1994 (Commission on Population 2000)). These affluent professionals are interested in marine conservation, with 87% of them reporting a willingness to participate in marine conservation projects and 97% of them willing to pay divers fee to support coastal management activities such as enforcement, education, monitoring, alternative livelihoods, and mooring buoys (KKP 2001).

Fishing continues to be an important, although declining, activity in the area. According to Haribon (1994), the number of Mabini families directly involved in fishing on a full-time basis declined from 320 families in 1980 to 203 in 1994. One Mabini barangay that is still largely a fishing community is Balanoy. Similarly, in Tingloy, the number of full-time fishing families declined from 782 families in 1980 to 435 in 1994. The gear type most widely used by artisinal fishers in Mabini and Tingloy is hook and line (*kawil*) closely followed by gillnets (*pante*) (Salamanca 2002).

Political and institutional context

Batangas has long been considered an area of intense peasant resistance against the state. During the 1920s and 30s, the peasants in this area organized to form a socialist party, declaring their intention to represent the needs and interests of the poor (Schirmer 1987). It was the organization and struggle of the

peasantry in Central Luzon that set the ground for the resistance movement of the Hukbalahap, organized during World War II against Japanese occupation, then in the post-war years against the Philippine government and US dominance. This movement had an extremely large popular base.

Due to its proximity to Manila, Batangas has a history of poor local control. The bay has been at the receiving end of often-conflicting government policies meant to decongest Manila (Business World 1999). While parts of this area are important coastal tourism destinations, it has also functioned as a site to divert commercial traffic clogging the capital. The Batangas International port was built largely to serve this function. Point source pollution can be seen in nearby oil, chemical, and food processing industries located in Batangas bay. The waste from these sources is brought to Balayan Bay by water currents during the northeast monsoon (Business World 1999).

The nearest offices of the Department of Environment and Natural Resources and the Bureau of Fisheries and Aquatic Resources are located in Batangas City. The Provincial Government Environment and Natural Resources Office (PGENRO) supports coastal management in the area by overseeing projects throughout the region and assisting with vessel traffic separation in the international port of Batangas City. This office has received substantial support from international projects, such as the Batangas Bay Demonstration project.

Coastal Management activities

The management of the coral reefs in this area is closely tied to the development of diving and coastal

tourism. The first advocates for protection of the coral reefs were divers who began to frequent Mabini and Tingloy dive sites in the mid-1970s. One of the first dive resorts in the Philippines (Dive 7000) opened in 1977 in Mabini and attracted many visitors. Some were concerned about the rampant illegal fishing occurring in those years. In 1978, the Department of Tourism passed P.D. 1801 declaring the islands and reefs a tourism zone. At this time, restrictions were imposed on development and spear fishing using scuba. In order to further protect the reefs of Sombrero Island as well as parts of Caban and Maricaban Islands, a national marine park was proposed in 1982.

Despite these efforts, except for some sporadic attempts to stop illegal fishing, there were no effective management efforts until 1988. The first ICM project began in the area when Haribon foundation started their coastal area development project in 1988. Haribon worked with fisherfolks and later with resort owners to establish a marine reserve and three marine sanctuaries (Cathedral Rock, Arthur's Rock, and Twin Rocks). In these areas, restrictions were placed on certain fishing and recreational activities. Haribon also worked with resort owners to establish ABBROA (Anilao-Balayan Bay Resort Owners' Association), which served as a vehicle for resort owners to collaborate on coastal conservation activities. This organization later failed due to mismanagement and lack of interest.

Beginning in 1991, the first baseline data were collected in the sanctuaries. This collection of biophysical data inside and outside of the sanctuaries has been continued by various Earthwatch trips led by Dr. Alan White and Dr. Patrick Christie in 1993, 1995, 1997, and 2001.

Social assessments have also been conducted in the area, beginning in 1994, when the Biodiversity Conservation Network supported Haribon Foundation to plan a major conservation program and conduct a socio-economic study (Telesis 1994)

The second major ICM project began in 1997 when World Wildlife Fund (KKP) began to support general conservation in the area. KKP has worked mainly with the government and private sector to implement a variety of conservation initiatives. In 1997, Mabini and Tingloy also became expansion areas of the CRMP/USAID project. As expansion sites, these municipalities have received assistance from CRMP in the form of information materials and training on coastal resource management.

Sulu Fund, beginning in 1999, is the latest ICM project in the area and the only one to focus exclusively on Tingloy. This project has mainly worked with community members in Tingloy to implement the national fisheries code, launch a *bantay dagat*, and establish a marine protected area.

Thus, there have been four major ICM projects in the Mabini-Tingloy area between 1988 and the present.

Project sites	Project title	Project duration	Funding	Project goals	Project Interventions
Mabini, Bgys. San Teodoro and Bagalangit	Haribon – Mabini-Tingloy coastal area development project	1988-1995	Information unavailable	To preserve the common resources in the Maricaban Strait in Batangas	a. A community-based conservation project along the shoreline of San Teodoro and Bagalangit Barangays in Mabini b. Samahang Pangkaunlaran ng San Teodoro, Inc. (cooperative) and several other community organizations c. Three marine protected areas (Twin Rocks, Arthur's Rock, and Cathedral Rock)
Batangas City, San Pascual, Bauan, Mabini, Tingloy	Batangas Bay Demonstration Project: Regional program for the prevention and management of marine pollution in the east asian seas	1994-1998	US$8 M UNDP – GEF-IMO/DENR, GOP-NAT, Prov. Govt.	To support the efforts of participating governments to prevent and manage marine pollution and the national and subregional levels on a long term and self reliant basis	a. Institutional capacity building b. Information/database development c. Environmental impact/risk assessment d. Strategic environmental management plan e. Management action plan f. Integrated land and water use zoning g. Environmental monitoring program h. Sustainable financing mechanism i. Core staff training j. Stakeholder consultation and public participation
Balayan Bay, Mabini-Tingloy	KKP - Marine Biodiversity Conservation project; ICM project in Balayan Bay	1997- present	Information unavailable	Conservation of biodiversity, focused on marine resources	a. Support for Bantay Dagat work through trainings, patrols and logistical support. Also donated two pump boats and put up buoys in the sanctuaries. b. Institution building by strengthening the MFARMC, BFARMCs, IFARMC, and MATINGCAD-C (Mabini Tingloy Coastal Area Development Council) in both towns (cross-visits, trainings).

						c. Training and education on waste management (both towns) and annual coastal clean-ups d. Environmental sensitivity index mapping and oil spill contingency planning in Batangas Bay e. User fee survey and systems development for sustainable financing f. CRM planning and legitimization with LGU g. Info campaign through publications and news letters h. Coral habitat mapping in coordination with Coral Cay Conservation
Tingloy, barangay Santo Tomas	Sulu Fund – CBCRM	1999-present	Information unavailable		To build the capacity of community members to implement a marine conservation project centered on the establishment of a marine protected area	a. Baseline information gathering b. Establishment of *Bantay Dagat* c. Implementation of National Fish Code d. Environmental education seminars e. community organizing

While local support for these initiatives has waxed and waned, evidence indicates a recent history of local support for coastal management in the area. Mayor Antonio H. Atienza of Tingloy is particularly well known for his staunch support of the enforcement of fisheries regulations. The Municipality of Tingloy has become active in developing a coastal resource management plan and implementing laws to ban illegal fishing and the use of compressors for fishing. One barangay in Tingloy, Santo Tomas, has become very active in planning for a new marine sanctuary at the Pulang Buli Reef off Maricaban Island.

Mabini continues to enforce the three marine sanctuaries and marine reserve along its shoreline through supporting the *Bantay Dagat* patrol (local law enforcement group). With authority from the Local Government Code, the mayors in this area have considerable influence on the development of coastal management regimes. Although problems exist, the general condition of the coral reefs in both municipalities is stable and improving in some sites.

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BAIS BAY PROFILE

Leila Sievanen

Physical Characteristics

Location. The Bais Bay case study site is located 45 km north of Dumaguete City, the provincial capital, on the eastern side of Negros Island (23° 9′ E longitude, 9° 34′ N latitude), facing the Tañon Strait in the central Philippines. It covers a total area of 5,430 hectares. The existence of Dewey Island and Talabong Mangrove Forest divides Bais Bay into two, North Bais Bay and South Bais Bay. Approximately one-third of North Bais Bay belongs to the Municipality of Manjuyod while the greater portion of it belongs to Bais City. The larger part of South Bais Bay belongs to Bais City while the remaining portion is part of Tanjay City (See figures 1 and 2 on next page).

Terrestrial Area. Bais and Manjuyod share a rocky 27 hectare shoreline and 348 hectare sandy beach. Together with Tanjay, there is a total of 830 hectares of flat inshore habitat. Inland, agricultural lands comprise 66% of the landscape (Delfin 1997), with sugarcane as the primary crop. There are about 24,000 hectares of sugarcane in the region (Bais Sugar Producers 2000).

Aquatic Area. There are three rivers in the area. Panambalon, Alangilanan, and Lutao Rivers supply fresh water to North Bais Bay. The Panambalon River supplies fresh water to South Bais Bay.

There are four ecosystems found in Bais Bay: soft-bottom, mangrove forest, seagrass beds, and coral reef. The soft-bottom area comprises about 87% of the bay. It is characterized by large mud and sand-mud substrates found

CHINA
Taiwan
Luzon Strait
Philippine Sea
South China Sea
Aparri
Luzon
Baguio
San Fernando
Quezon
MANILA
Batangas
Mindoro
Panay
Iloilo
Guimaras Island
Negros
Cebu
Leyte
Samar
Bohol
Cagayan de Oro
Iligan
Butuan
Mindanao
Davao
Puerto Princesa
Palawan
Sulu Sea
Zamboanga
Jolo
MALAYSIA
INDONESIA
Celebes Sea
INDONESIA
0 100 200 mi
0 150 300 km
Pesticide
Organic Pollution
Sit
Fertilizer residues
Sugar mill effluent
NORTH BAIS BAY
Agricultural Land
Pesticide residues
Fertilizer residues
Fishponds
BAIS CITY
Oil
Domestic waste
Olympia I.
Tubig
Mariculture farming
Shell fish collecting
SOUTH BAIS BAY
Agricultural Land
TANJAY
Kilometers
Central Azucarera de Bais
LEGEND
Algae on Seagrass Bed
Corals on Seagrass Bed

Figure 2

in both deep and shallow waters, but most prevalent near the mouths of the rivers. The sediment composition in North Bais Bay is generally coarse with patches of very fine sand and silt. In South Bais Bay, the sediment composition varies from coarse, medium fine to silt (Calumpong and Luchavez, 1997). The soft-bottom areas are rich sources of mollusk shells and invertebrates (gastropods, polycheates, bivalves, and crustaceans). The 6 most commonly harvested species of invertebrates in the bay are *Portunus pelagius* (lambay), *Penaeid shrimp* (pasayan), *Sepiotheuthis sp.* (nokos), *Dolabella auricularia* eggs (lukot), *Phacoides philippinarum* (imbao), and *Strombus canarium* (bungkawel). Other fishery resources found in Bais Bay are fish, mollusks, holothurians, sea urchins, crustaceans, and seaweeds.

Mangrove forest covers 379 hectares of the region. Bais City has the largest mangrove area with 344 hectares. Manjuyod's mangrove area encompasses 34.79 hectares. Seventy three percent of the city's total mangrove area lies in South Bais Bay. In 1985, this area was declared as the "Talabong Game Refuge, Wildlife Sanctuary, and Tourist Spot." There are about 14 species of mangroves found in Bais Bay. The most common genera are *Rhizopora* (bakhawan), *Avicennia* (api-api), and *Sonneratia* (pagatpat).

The seagrass ecosystem of Bais Bay is patchily distributed over a 677-hectare area. Calumpong, et al. (1994) reported six species of seagrass in the area: *Enhalus acoroides, Thalassia hemprichii, Halodule uninerius, H. pinifolia, Cymodocea rotundata,* and *Syringodium isoetifolium.* Algae is most commonly found in the seagrass bed, occupying about 25 hectares of this ecosystem.

Bais Bay contains approximately 343 hectares of corals. The live coral cover found in the shallow and deep part of Campuyo Reef in North Bais Bay ranges from 37% to 47.6%. The rest of the substrate consists of dead corals, soft corals, algae, sand rubble, and rock. Calumpong (1997) suggests that siltation and low water visibility might have caused the death of most corals, resulting in very low live coral cover.

Socio-economic conditions. Two cities and one municipality surround Bais Bay: Bais City, Tanjay City, and the Municipality of Manjuyod. A total of 16 coastal *barangays* surround this bay: ten *barangays* in Bais, five in Manjuyod, and one in Tanjay.

Bais City has a total land area of 31,690 hectares with a population of 68,115 (NSO 2000). The following coastal *barangays* are included in the study: *Barangay* Capiñahan (pop.1,535) and *Barangay* Okiot (pop. 3,032). The age distribution in Bais is as follows: 39% are under 15 years old; 57% are between 15 and 64 years old; and 4% are over 65 years old. Farmers make up 65.7% of the working population (Delfin 1997).

Manjuyod, the municipality that encompasses the northern part of the bay, has a total area of 14,835.4954 hectares with a population of 37,863. The following *barangays* are included in the study: *Barangay* Campuyo (pop. 2,514) and *Barangay* Bolisong (pop. 2,521) (NSO 2000). Out of the 6,013 households in Manjuyod, 5,167 are farmers and 400 are fisher folks. Forty one percent of the population of Manjuyod is under 15 years old, 55% is between 15 and 64, and 4% is over 65 years old.

Tanjay, the city in the southern portion of the bay has a total area of 27,705 hectares with a population of 70,169. Only one of its coastal *barangays*, *Barangay* Luca (pop. 2,618) (NSO 2000), borders the bay. The age distribution

in Tanjay is as follows: 37% are under 15 years old, 57% are between 15 and 64 years old, and 5% are over 65. Tanjay's principal means of livelihood is also farming.

The average annual income of the province of Negros Oriental is PhP 90,459 (FIES 2000). This is significantly lower than the national average of PhP 144,039 (NSO 2000).

The tourism economy has been rapidly growing in the area. The rising popularity of Bais City Tourism Council's whale and dolphin watching tours in Tañon Strait has helped Bais gain national and international recognition. From 1999-2000, there were a total of 3,662 whale watchers recorded (Abrenica). While some foreign tourists participate in whale watching activities, 88% of all tourists are Filipinos. The total net income for whale watching from April 1999 to March 2000 was Php 504,006. This figure represents 25% of the total LGU budget during this time period.

Despite the growing economic importance of tourism, the majority of Manjuyod and Tanjay residents are still dependent on the bay. Fishing continues to be an important, although declining, activity in the area. Between 1992 and 1998, the number of full-time and part-time fishers in the bay decreased from 3,077 to 2,491 (Luchavez and Abrenica 1997). The fish caught in the bay tend to be small in size and the catch per unit effort is relatively low compared to nearby areas such as Bindoy and Bayawan (Luchavez, et al., 1997). The most widely used gear type is the gillnet (*pukot)*. There is no commercial fishing reported in the bay.

Political and Institutional Context. During Spanish colonization, Bais City was a barrio of the Municipality of Manjuyod. On September 1, 1968,

Bais became a city by virtue of Republic Act No. 5444. Manjuyod still remains a municipality, while Tanjay became a city last April 1, 2001. With the passage of the Local Government Code, cities are entitled to a greater percentage of the Internal Revenue Allotment than municipalities.

Since the bay is a significant source of livelihood for the LGUs surrounding it, numerous coastal management projects and programs have been implemented in the area. These projects and programs began in the early 1980s. Foreign and local funding agencies, scientists, academic institutions such as Silliman University, and NGOs have been active in these endeavors. However, the LGU has been the primary instigator in most of these activities.

Former Mayors of Manjuyod and Bais have been well-known coastal resource management supporters. Former Manjuyod Mayor, Jose Baldado (1976-1997), started coastal management activities in the area, followed by his brother, Mayor Orville Baldado (1997–2001). In Bais City, former Mayor Genaro Goñi (1988–1991) started CRM programs and activities. His incumbent, Mayor Francisco Villanueva (1991-2001), continued many of these initiatives.

Manjuyod, Bais City, and Tanjay City all border Bais Bay and share common resources. MABATA, which stands for Manjuyod, Bais, and Tanjay, was a coordinating body formed last April 1999 by the three LGUs after CRMP's Eco-tourism Seminar Workshop in Bais City. The goal of this body was to work together as a unit to achieve sustainable development in the region and work towards eco-tourism development. This

initiative failed because of miscommunication, an on-going boundary conflict between Bais and Manjuyod, and lack of adequate funding to facilitate their activities.

Coastal Management activities. The World-Bank funded Central Visayas Regional Project (CVRP) (1984-1992) was the first ICM project in Bais Bay. This was a pilot project designed to test community-based rural development. In Bais Bay, CVRP worked in Manjuyod to establish a marine reserve in Sitio Limayag and *Barangay* Campuyo and mangrove reforestation projects, as well as build artificial reefs and fish aggregating devices.

In 1991, the CIDA-funded Environment and Resource Management Project (ERMP) was implemented in coordination with Silliman University. ERMP lasted only 1 ½ years. Following this project was the ASEAN-Australia funded Coastal Living Resources Project (CLRP) (1990-1994). This project conducted trophodynamic studies in Bais Bay while engaging in a community information drive and database management activities.

In 1996, the USAID-funded Coastal Resource Management Project (CRMP) began. This project concentrated on mangrove rehabilitation, enterprise development, and technical assistance. The latter activity focused on enforcement of the fisheries code, formation of Fisheries and Aquatic Resource Management Councils (FARMCs), and a CRM Planning Workshop.

Thus, there have been four major ICM projects in the Bais Bay area between 1984 and the present:

Project sites	Project title	Project duration	Funding	Project Goals	Project Intervention
Bais city, Manjuyod, Tanjay	Central Visayas Regional Project (CVRP)	1984-1992	World Bank, US$ 3.5 million	To restore and rehabilitate the degraded marine resources and increase the income of fishers	a. Mangrove rehabilitation b. marine sanctuary establishment/coral reef protection c. Artificial reefs d. Fish attracting devices e. Mariculture f. Community organizing
Manjuyod	Bais Bay Environment and Resource Management Project (ERMP)	1990-1992	CIDA	To support Community-based Natural Resource Management in Bais Bay	a. Marine resource management b. Watershed c. Productivity d. Coordination
North and South Bais Bay	Coastal Living Resources Project	1990-1994	Unavailable	To develop the scientific understanding and expertise to better manage the Southeast Asia region's living coastal resources	a. Study of tropodynamic interactions b. Community information drive c. Database management
Bais City, Manjuyod, Tanjay	Coastal Resources Management Project (CRMP)/DENR	1996-2001	USAID US$21M GOP PhP 72.7M	To achieve sustainable CRM in large areas of the Philippines in order to reverse on-going resource degradation	a. Community-based coastal resource management b. Strategic expansion c. Micro-enterprise development d. Policy implementation e. Support services f. Information, education, and communication g. Monitoring, evaluation and

Out of the many programs and projects implemented in Bais Bay, few have been sustained. Seaweed farming in *Barangay* Okiot, Bais City, is one of the on-going activities. Some reasons for its success are that the fishermen involved have benefited economically from the seaweed harvest and the rabbit fish (Siganids) that inhabit the seaweed farms. CRMP helped to establish the *Barangay* Okiot Seaweed Farmers Association (BOSFA), an active association continuing and supporting the activity. The Bais City Multi-Purpose Cooperative (BACMUCO), also organized by CRMP, assists BOSFA by granting them loans in the form of seaweed seedlings and planting materials.

Mangrove reforestation and conservation was also a successful activity for many years. This activity continued mainly because of the support from the Bais City local government's tourism division. The Talabong Mangrove Forest is one of the main tourist destinations in the area. Though mangrove reforestation has been successful, it is no longer very active mainly because of Republic Act 7161, passed in 1991, which made the cutting of mangroves illegal. As a result, people now have less incentive to reforest. However, because of the cancellation, voluntary revocation, and abandonment of Fishpond Lease Agreements (FLAs), there has been some natural mangrove regeneration in those areas.

Of the institutional initiatives in the area, only the *Bantay Dagat*[1] is still functioning. However, due to the change in administration, many of the original members have been replaced. This replacement has led to a lack of understanding and experiences in implementing Fisheries code regulations. The City Fisheries Aquatic Resources Management Council (CFARMC) of Bais City has failed because of poor leadership. However, Manjuyod, Bais, and Tanjay are all engaged in annual monitoring and evaluation reports to attain a CRM certification by CRMP and continue to maintain a Municipal Coastal Database.

[1] *Bantay Dagat*(meaning 'sea watch') members are deputized fish wardens with the powers of arrest, apprehension, monitoring, and surveillance.

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FACTORS INFLUENCING THE SUSTAINABILITY OF INTEGRATED COASTAL MANAGEMENT PROJECTS IN THE PHILIPPINES

Richard B. Pollnac, Monika T. Thiele, Rose-Liza Villahermosa Eisma, Wednesday Gay Gaudan, Esperanza Tabara, Nicel Jane Dinoy, and Rodolfo Avellana, Jr.

ABSTRACT

The paper examines the sustainability of integrated coastal management (ICM) activities associated with several ICM projects in the Philippines. Sustainability implies continuance of activity beyond project termination date; hence, the focus of this study is on those that ended more than 5 years ago. In the large projects examined in the research, activities were carried out in numerous municipalities and villages (barangays), and there were varying levels of sustained activities in the different project sites. This paper examines data from 42 villages in the Visayas, Batangas, and Lingayan Gulf areas of the Philippines and quantitatively elucidates socioeconomic and project activity factors related to these differences in ICM sustainability. The results indicate that social science theory and findings already in the literature can be used to account for some of the differential levels of success. As the research clearly indicates, practices related to sustainability are not always applied in actual project implementation. And even where they are, we still find mixed results suggesting that we must refine our research methods even further to determine other factors influencing ICM project sustainability.

Introduction

Although some would like to divorce the concept of "success" from "sustainable", it should be clear that successful project activities are an essential prerequisite of sustainable coastal management, especially if the activity is somehow linked to sustainable resource use. For purposes of our research, a sustainable integrated coastal resource process has been defined as:

> *a process that supports sustainable resource use beyond the termination of an ICM project. It is adaptive and multi-sectoral as appropriate and is supported by a stable source of financial and technical resources.*

If we define "process" as a particular way of doing things, we can conceptualize project activities, e.g., establishing a marine protected area (MPA), developing a management plan, etc. as a process. The relative success of these activities, then, would be part of the process that influences the sustainability of ICM.

There have been many ICM and community based coastal resource management projects in the Philippines (Courtney and White, 2000; Pomeroy and Carlos, 1997). As they have manifested various levels of success when they were implemented, their sustainability has varied widely. Some are nothing but a memory; others are still visible in terms of ongoing activities. What is interesting, and possibly valuable in terms of learning lessons about factors influencing processes that support sustained resource use, is that within the same project there are varying levels of sustained activities in different project sites. Hence, it seems obvious that if we want to learn what factors influence ICM sustainability, we would do a comparative analysis of project sites that vary in terms of sustained activities.

The purpose of this paper is to examine the sustainability of ICM activities associated with several ICM projects in the Philippines. Since the question concerns sustainability, we set a selection criteria for projects sampled in this evaluation to those where project inputs have ended for at least 5 years. In most of the large projects activities were carried out in numerous municipalities and *barangays*, and in most there were varying levels of sustained activities in the different project sites (Pollnac, et al., 2001; Pomeroy, et al., 1997; Ferrer, et al., 1996). This paper will attempt to quantitatively elucidate factors related to these differences in sustainability.

Background

Numerous case studies (see Crawford, et al., 2000, which was based on a series of focus group meetings and Pomeroy 1994 for a summary) and a few quantitative, comparative studies (e.g., Pollnac, et al., 2001; World Bank 1999; Pomeroy, et al., 1997) have been conducted evaluating factors or variables influencing the success of coastal management project activities. A careful review of this literature has suggested several types of factors that appear to influence sustainability of ICM as related to success of project activities; hence, we focus on predictors of success in the review. The first are contextual: demographic and socioeconomic aspects of the project communities. Several aspects of the physical environment and demography have been suggested as factors influencing success of CRM projects. Crawford, et al. (2000) suggest geographic size of the village. The direction of the relationship is not clear in their report, but it seems possible that villages with larger geographic areas might be more difficult to govern if the population is dispersed. Alternately, one might assume that larger villages would have more alternative (terrestrial) resources; hence allowing the development of more alternative livelihoods to take the place of resources regulated by CRM activities. Several researchers (Crawford, 2000; Novaczek and Harkes, 1998; McGoodwin, 1994) have suggested that population size as well as changes in population size and density influence CRM project success, especially community-based CRM (CBCRM) projects, while Pollnac, et al. (2001) found population size to be a major predictor of MPA success. Small populations seem easier to organize and rapid increases in population can lead to disorganization and conflict. Distance of the village from the municipal center might influence the ability of the municipal government to provide support—government support considered important by Crawford, et al. (2000). Finally, a perceived crisis with respect to coastal resources is alleged to positively influence development of community participation in management (Pinkerton, 1989a,b).

Aspects of the social environment have also been found to influence the success of CRM projects. Socioeconomic and cultural homogeneity have been identified as factors contributing to the success of CBCRM and CB-MPA projects (Pollnac, 2000; Crawford, et al., 2000; White, et al., 1994; Doulman, 1993; Jentoft, 1989; Pinkerton, 1989b). This is probably due to the fact that it is easier to achieve consensus with respect to project activities where the population is more homogeneous. Degree of dependence on coastal resources also seems to be related to acceptance of CRM activities (Crawford, et al., 2000; Pollnac, 1994). Level of community development (Crawford, et al., 2000), degree of integration into political and economic system (Crawford, et al., 2000; Doulman, 1993), and a "healthy" community (Jentoft, et al., 1998) are all said to be related to success of CRM projects.

Communities with a tradition of cooperation and collective action have also been identified as those most likely to effectively respond to CRM projects (Crawford, et al., 2000; Pomeroy, et al., 1997; Jentoft, 1989). Some have linked degree of democracy or authoritarianism to CRM, especially CBCRM project success (Crawford, et al., 2000). It seems obvious that community based projects would be more successful in less authoritarian communities, but it should be noted that Novaczek and Harkes (1998) found that successful local level management systems (*sasi*) in the Moluccas (Indonesia) were likely to be associated with the authoritarian power of a strong local leader. Success of CRM projects has also been linked to stability of local governments (Crawford, et al. 2000). Finally, supportive local leadership is said to contribute to the success of CRM projects (Crawford, et al., 2000; White, et al., 1994). Further, visits to the village by government officials appear to instill community pride in a project.

Crawford, et al. (2000) identified a large number of aspects of project activities that allegedly influence success of CRM projects. Interaction or networking with other CRM projects has been cited as a factor enhancing chances of success. Some have suggested that the existence of other coastal resource management

projects in the community can also facilitate success. Many rural communities have multiple problems, and more can be addressed in multiple projects. It is important to note that establishment of regulations that limit resource exploitation removes some of the resource from harvesting by the community (e.g., as with an MPA). It has been argued that the controlled resource should be replaced by alternative or supplemental income generating activities; hence, these activities have been related to CRM project success (Pollnac, et al., 2001). It is widely accepted that training is a necessary component to any type of development or conservation project (White, et al., 1994). Finally, inputs (financial or material) are essential to project success. Many of the factors alleged to influence CRM success in Crawford, et al., (2000) involve some aspect of local participation in the project. Local level participation in project development and implementation has long been recognized as a factor promoting desired changes (Cernea, 1991; Chambers, 1983; Morss, et al., 1976; Rogers, 1969) and CRM projects are no exception to this rule (Pomeroy, et al. 1997; Pomeroy 1994; White, et al., 1994). With respect to continuity of project activities, the number of ongoing training sessions during and after implementation seems to be important.

In sum, a large number of variables have been implicated in the success or failure of CRM project activities. It seems that if we want to determine factors influencing sustainability of ICM projects it will be necessary to evaluate these factors across a range of project locations to determine which are associated with different levels of success of project components which may impact sustainability.

Methods

SAMPLE Project sites associated with three major ICM projects were examined as a part of this research: the Central Visayas Regional Project (CVRP), a municipal level, watershed scale project in the Visayas, which was implemented in 1984 and ran until 1992; the ASEAN-US Coastal Resources Management

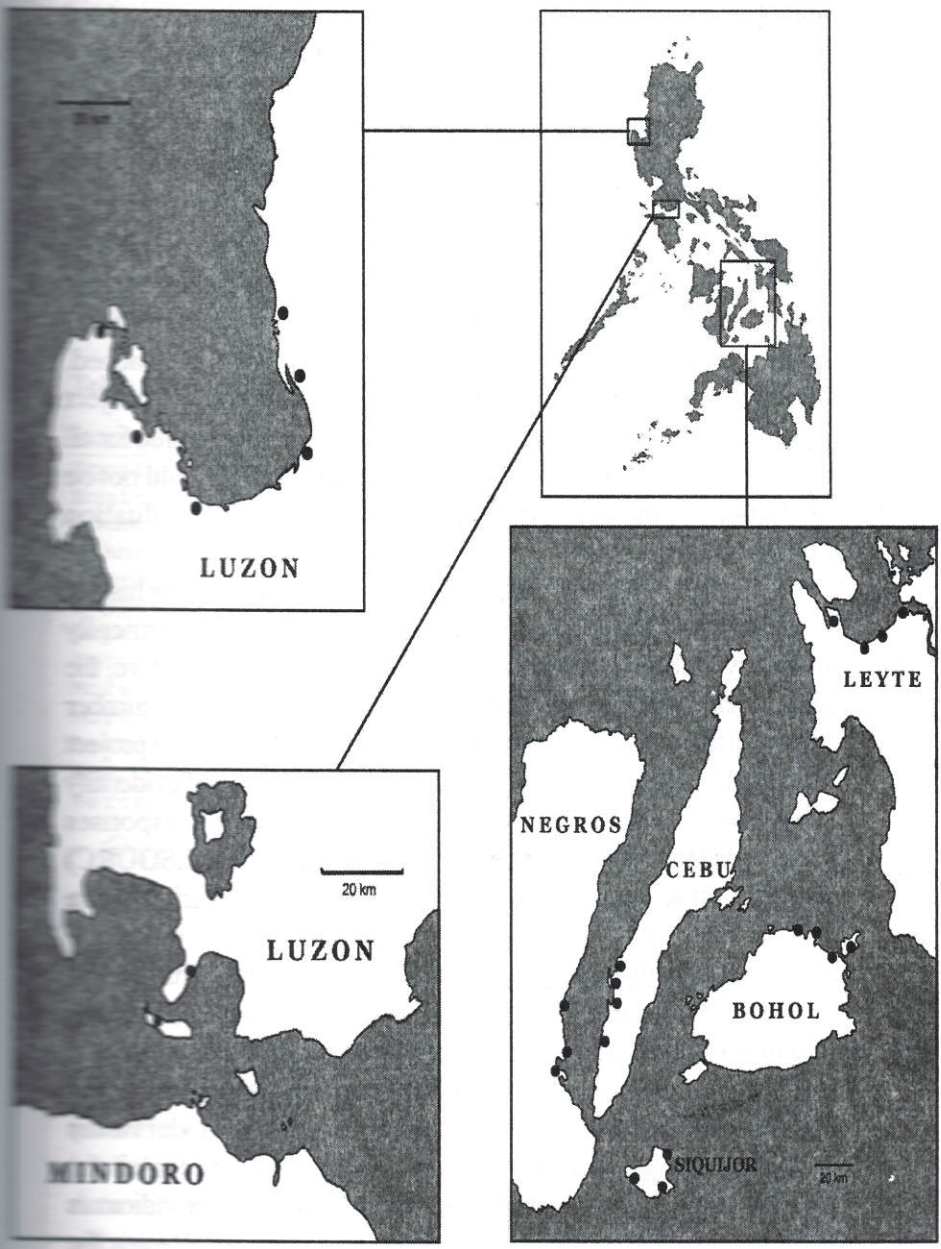
Project (ASEAN-US CRMP, 1986-1992), a gulf wide management planning initiative, and the Fishery Sector Project (FSP, 1989-1996) a bay planning initiative implemented in numerous bays and gulfs in the Philippines. For CVRP data were collected in 3 villages in Siquior, 4 in Negros Oriental, 5 in Cebu, and 11 in Bohol. Six FSP project villages were assessed in Carigara Bay, Leyte. Seven ASEAN-US CRMP project villages were assessed in Lingayan Gulf in the Provinces of Pangasinan and La Union. Finally, six villages associated with a variety of other ICM projects, many funded by NGOs, were assessed in Batangas and Bais Bay, Negros Oriental. Data were collected in a total of 42 project villages, which are located in the 26 municipalities indicated by black dots on the map in Figure 1 (next page).

Data were obtained with the use of a survey questionnaire. In each village, a village official (usually the *barangay* captain) was interviewed to obtain basic information about the village as well as topics related to project activities and impacts. Project participants, individuals involved in project activities, were also interviewed. The number of participants depended on the range of activities carried out. A total of 148 participants were interviewed across the 42 villages resulting in an average of approximately 4 (3.5) per village. Finally, resource users were interviewed. An attempt was made to interview representatives of users of the various types of resources impacted by project activities. Across the 42 villages, 236 resource users were interviewed, resulting in an average of about 6 (5.6) per village.

Measures: Dependent Variables

The dependent variables are project outputs or activities which are indicators of processes that support sustainable resource use beyond the termination of an ICM project. One measure of project sustainability is a summary measure constructed from the research team's evaluations.

Figure 1. locations of project municipalities.



Following completion of data collection at each site, the team (all were involved in the data collection process) assembled and ranked each site in relation to the others on a scale of from 1 to 5 on topics considered as indicators of project sustainability. The topics ranked were compliance with MPA rules, compliance with mangrove conservation rules, beach cleanliness, and overall project impact. The ranking was based on research team observations, as well as comments made by resource users (e.g., fishers), project participants, officials (e.g., the *barangay* captain, secretary, etc.), and other community members concerning the topic. The topics were discussed until a consensus was reached. The summary measure of the team's evaluation of project sustainability was constructed by calculating the mean value for all topics evaluated (e.g., if a MPA was not present, it could not be evaluated). This measure is referred to as Team Evaluation (TEAMEVAL).

In each village a village official (*barangay* captain or his/her representative) was asked if the village benefited economically from any of the project activities. If the response was positive, the respondent was requested to name the activities. The total number of beneficial activities mentioned is used as an indicator of project sustainability (ZTOTACT). The officials were also asked to identify the types of benefits received from the activity. The responses were coded into the categories of resource benefits (BRESOURC) and economic benefits (BINCOM). Both of these variables are dichotomies.

In each village, project participants were requested to evaluate on a scale of from 1 to 4 (1=none, 2=very little, 3=some, 4=a lot) project impacts in terms of each of the indicators listed in Table 1. Modal (the most frequently occurring) values for each of these evaluations were determined for each village. Modal values for the village are used since the village, not the individual, is the sampling unit. While it is interesting to examine each of the indicators one at a time, it is possible that there are relationships between the indicators that can be used to understand changes in more general

factors in the project communities. As a means of discovering these more general factors, principal component analysis with varimax rotation was used to elucidate patterns of relationships between evaluations of the 12 indicators. The screen test was used to determine the number of components, resulting in 2 components, which account for a total of 69 percent of the variance in the data set. The results of this analysis are in Table 1. Most of the items loading highest on the first component are related to access and equity. On the second component most of items loading highest are related to quality of life.

Table 1. Principal component analysis of perceived project impacts

INDICATOR	ACCESS EQUITY	QUALITY OF LIFE
Equity in income from resource	0.847	0.155
Equity in access to resource	0.833	0.120
Community control over resource	0.819	0.181
Quantity of fish	0.794	0.261
Improved access to resource	0.786	0.386
Improved income	0.648	0.588
Improved housing	0.184	0.920
Better health care	0.257	0.880
More education for children	0.414	0.859
More mangroves	-0.410	0.574
Better water quality	0.428	0.556
New occupations	0.208	0.521
Percent Total Variance	36.798	32.514

Component scores representing the position of each village on each component were created for each village. The component scores are the sum of the component coefficients times the sample standardized variables. These coefficients are proportional to the component loadings. Hence, items with high positive loadings contribute more strongly to a positive component score than those with low or negative loadings. Nevertheless, all items contribute (or subtract) from the score; hence, items with moderately high loadings on more than one component (e.g., improved income in the analysis presented here) will contribute at a moderate level, although differently, to the component scores associated with the

both components. This type of component score provides the best representation of the data. In this paper, for these data we will refer to these scores as Access/Equity (ACCEQI) and Quality of Life (QUALIFE) indicators.

Since project participants have the greatest knowledge concerning project activities in the villages, they were requested to indicate all activities undertaken and then indicate whether or not the activity is still being carried out (sustained). The percent of sustained activities is used as another indicator of ICM sustainability (SUSTAIND).

Resource users have the most consistent contact with the resource; hence, they are in a better position to comment on its quality and quantity. Resource users were requested to evaluate changes in fish abundance[1] and coral reef conditions since project implementation on a scale of from 1 to 5 (1=gotten much worse, 2=a little worse, 3=not changed, 4=improved a little, 5=improved a lot). Median values for user respondents in a village are assigned as the value for the village and are identified as time-two resource (T2RESMED) and time-two coral (T2CORAL) respectively.

Table 2. Principal component analysis of sustainability indicators

INDICATOR	COMPLIANCE & ACCESS	SUSTAINED ACTIVITY	RESOURCE & GOVERNANCE
COMPL2U	0.798	-0.066	0.142
T2CORAL	0.726	0.120	0.203
COMPL1U	0.692	0.052	0.265
ACCEQI	0.619	0.103	-0.207
LEGALFTO	0.588	-0.122	0.592
SUSTAIND	-0.051	0.868	0.002
QUALIF	-0.294	0.775	-0.203
TEAMEVAL	0.192	0.690	0.213
ZTOTACT	0.323	0.555	0.322
GRPSUCCU	0.471	0.553	0.187
LEGALWTO	0.190	-0.091	0.745
KNOWRULE	-0.333	0.268	0.717
BINCOM	0.106	0.037	0.522
T2RESMED	0.152	0.191	0.472
Pct. Tot. Var.	21.466	18.632	16.525

Another indicator of sustainability is the continuity of groups or associations (e.g., fisher or farmer cooperatives, etc.) formed as a part of project activities. These groups are usually responsible

for carrying out project activities after project inputs cease; hence, their importance in ICM sustainability. This is a dichotomous variable indicating group success (GRPSUCCU).

A major component of ICM sustainability involves knowledge of and compliance with the rules and regulations that form a part of coastal management. Several indicators are used to evaluate this aspect of sustainability. First, project participants were requested to evaluate on a scale of from 1 to 3 (1=no awareness, 2=some awareness, 3=full awareness) the extent to which community members are aware of ICM rules. The modal value reported in each village is used as the indicator of knowledge of ICM rules (KNOWRULE). Resource users were asked which rules they know, and for each rule (ordinance) they were requested to evaluate compliance on a scale of from 1 to 4 (1=no compliance, 2=most violate, 3=most comply, 4=all comply). The median value for the first two rules mentioned is used as the indicator (COMPL1U and COMPL2U, respectively). All respondents (village official, participants, and resource users) were asked about the presence of blast (dynamite), cyanide, and other illegal fishing methods. If any respondent in each group gave a positive response to one of these categories of illegal fishing, it was coded as present at the village (a dichotomy, 1=present, 0=absent). These values were summed within each category resulting in a score for illegal fishing that ranges between 0 and 3 for each respondent category within each village. The scores for the respondent categories were then summed for each village resulting in a total score for illegal fishing that varies between 0 and 9. To facilitate analysis, the score was converted to a score for legal fishing by changing the sign of the value, resulting in a score varying between –9 and 0, with the lower value (-9) indicating the least amount of legal fishing (LEGALFTO).

An important point concerning illegal fishing is who is involved. It seems obvious that if the illegal fishing is conducted by project villagers, it reflects more negatively on the sustainability of

the project than if it is conducted by outsiders. Hence, respondents were requested to indicate who (in terms of residence) is conducting the illegal fishing. If any respondent in each group indicated community member involvement in one of these categories of illegal fishing, it was coded as present at the village (a dichotomy, 1=present, 0=absent). These values were summed within each category resulting in a score for illegal fishing by community members with a range between 0 and 3 for each respondent category within each village. The scores for the respondent categories were then summed for each village resulting in a total score for illegal fishing by community members that varies between 0 and 9. To facilitate analysis, the score was converted to a score for legal fishing by community members by changing the sign of the value, resulting in a score varying between –9 and 0, with the lower value (-9) indicating the least amount of legal fishing (LEGALWTO).

Table 3. Principal component analysis of village development indicators.

INDICATOR	BASIC DEVELOP.	EXTERNAL LINKS	ADVANCED DEVELOP.
Dentist	0.742	0.088	-0.115
Hard top road	0.673	0.273	-0.183
Electricity present	0.633	-0.088	0.033
Gas station	0.566	0.125	0.197
Doctor	0.528	-0.176	0.416
Restaurant	-0.194	0.752	0.019
Primary school	0.038	-0.732	0.235
Telephone	0.187	0.616	0.305
Newspaper available	0.074	0.572	0.032
General store	0.207	0.012	0.770
Secondary school	-0.068	0.066	0.550
Internet cafe	-0.072	0.048	0.506
Drugstore	-0.110	-0.038	0.500
Septic system present	0.481	0.027	-0.260
Public bus service	0.334	0.230	-0.207
Hotel	0.278	0.312	0.077
Pct. Total Variance	16.042	13.147	12.049

Thus far we have described a relatively large number of indicators of ICM project sustainability. In several cases the measures were summary measures composed of the responses

to several questions. Nevertheless, this large number can result in an overwhelming number of statistics upon analysis; hence, we will once again use principal component analysis to see if interrelationships between the separate measures justifies reducing them to a smaller number of summary scales. The technique used is the same as described above, and it resulted in the analysis presented in Table 2. Variable identifiers are those used in the description above.

The items loading highest on component one are for the most part related to compliance, access and equity; on component two, quality of life, number of activities perceived as beneficial, percent of project activities maintained, and the team evaluation; finally, on the third component, governance (knowledge of rules and compliance with rules governing major categories of illegal fishing), resource abundance, and income. These composite variables are referred to as Compliance & Access (COMPACC), Sustained Activity (SUSTACT), and Governance & Resource respectively (RESGOV).[2] As for the principal component analysis presented above, factor scores on each component were calculated for each village.

Measures: Independent Variables

The independent variables are the factors expected to influence ICM sustainability as they were discussed above in the background section. Most of these variables are rather straightforward in terms of their measurement, and they will be discussed only briefly here.

Demographic and geographic variables were collected from either the village official or obtained from secondary, published statistics. These include population size for different time periods (used to calculate changes in population) and village area (also used for calculating population density. Distance from municipal center was obtained from maps or the village official. Relative abundance of fish resources (as indicated by fish catch) was determined by asking resource users (fishers) to rank the catch

on a scale of from 1 to 5 (1=very poor, 2=poor, 3=average, 4=good, 5=very good). Median value for all user respondents in the village is used as the village indicator.

Several indicators are used to indicate levels of socioeconomic and cultural homogeneity. First, the village official was asked if immigration had an influence on village population. Presence of immigrants can be used as an indicator of heterogeneity. Number of religions and percent Catholic can also be used as indicators of cultural homogeneity. Finally, occupational homogeneity can be estimated by the distribution of occupations. Here we simply use percent fishers for the indicator.

Degree of dependence on coastal resources is estimated by the relative importance of fishing to the village economy. The village official was requested to rank all occupations to obtain this indicator. Degree of tourism is also an indicator of the importance of coastal resources since most tourists in the region are coastal oriented. Degree of tourism was ranked on a scale ranging from 1 to 5 by the research team[3] based on interviews and observation of facilities. Tourism was also measured as a dichotomy—present or absent.

Level of community development was assessed using several techniques. First, the research team ranked the standard of living of community inhabitants based on observations and interviews. Additionally, information concerning the presence or absence (and in some cases the percentage or number) of various community development indicators was collected by observation and interviews with village officials. A subset of these variables was analyzed using principal component analysis as described above. The results of this analysis and the variables used can be found in Table 3. Percent of households with electricity and sealed septic systems are used as separate indicators. They were also dichotomized at the sample means for use in the principal component analysis.

The analysis resulted in three components. The first includes basic items related to community development such as healthcare and sanitation, electricity, and transportation integration. The

second includes items associated with tourists and other links to the larger society (newspaper and telephone). The third includes items indicative of a higher level of development than component one, such as retail services and a secondary school. The existence of "internet" on this component is puzzling. The three components are referred to as Basic Development, External Links, and Advanced Development respectively.

Degree of integration into the political system is measured by the number of visits provincial level officials make to the village per year. Degree of integration into the economic system is indicated by questions concerning the marketing of village products. The village official was asked where local products are sold: in the village, the municipality, the province, the nation, or internationally. Each response was coded as a dichotomy and the responses were summed resulting in a measure that ranges from 1 to 5.

As a measure of community health we used an evaluation of child weights. We contend that a community's well being will be rapidly reflected in the nutritional status of its children. This measure is probably closely related to another indicator of quality of life—infant mortality rate. According to Newland (1981:5) "no cold statistic expresses more eloquently the differences between a society of sufficiency and a society of deprivation than the infant mortality rate." The "rapid response" nature and ready availability of classified pre-school child weights at the local level led us to select it as our measure. The evaluation of child weights is based on pre-school weights of children classified as slightly underweight, moderately underweight, and severely underweight. The community health center is responsible for weighing all pre-school children and making these classifications. They record the number overweight, normal, and slightly, moderately, and severely underweight. The measures used in this research are total percent underweight and total percent moderately and severely underweight.

Several indicators are used for determining whether the

village has a tradition of cooperation and collective action. First, the number of official groups and associations was obtained from village officials. They were also asked if there was a *bayanihan* (self-help association) in existence before project implementation. Since conflict reduces the level of cooperation, the village officials were also requested to rank the community on a scale of from 1 to 5 for this indicator (1=no conflict and 5=a great deal of conflict. Finally, the research team ranked the village on a scale of from 1 to 5 concerning the degree of tension ascertained through interview responses and observations made in the community.

The indicator for community participation in community affairs was annual number of official village meetings and the attendance rate (percent of villagers) at these meetings. This information was obtained from village officials. Number of *barangay* captains since 1980 is used as an indicator of stability of local government.

Turning to variables associated with project activities, the *barangay* captain's involvement in project activities and the mayor's running on an environmental platform are used to indicate support of the project by local leadership. This information was obtained from village officials. Involvement of members of the tourist industry in ICM activities was also ascertained from interviews with project participants. Project participants were also requested to indicate who was involved in making decisions influencing project activity: project related village associations, community members, project officials, village government, and supra-village government (e.g., municipal, provincial, etc.). Each of these groups is treated as a dichotomy. The values for each group are also summed to provide a figure indicating the total number of groups involved in project decision-making. This scale ranged from 1 to 5. Project participants also indicated whether or not community members were involved in project monitoring and whether the monitoring resulted in changes in project activities.

The types of training programs carried out by the project were determined. The total number of initial training sessions and

ongoing training sessions are the indicators used in this report. Stability of project staff was ascertained by asking project participants if there were changes in staff during the project. This was coded as a simple yes/no dichotomy. Project participants also provided information concerning whether they were networking with people from other ICM projects outside their village. The relative adequacy of supporting funds and material was ranked by project participants on a scale of from 1 to 3 (1=not adequate, 2=somewhat adequate, 3=adequate). The modal value for all participants is used as the village indicator. Finally, resource users were requested to name all rules they know that apply to ICM. They were also requested to evaluate the rule in terms of degree of restriction. The level of perceived restrictiveness of the first (therefore, most salient) regulation mentioned is the indicator used in the analysis.

Analysis

Bivariate analyses. The first step in the analysis consisted of calculating the zero-order correlations between the independent (predictor) variables and the sustainability indicators. The results of these analyses can be found in Tables 4a through 6c. Comments are restricted to variables statistically significantly correlated with the sustainability indicators ($p < 0.05$).

Demographic, Geographic, and Socioeconomic Variables. Turning first to the demographic, geographic, and socioeconomic variables (Tables 4a through 4c), we find that the larger the population, and the higher the component scores on the basic and advanced development component scores, the lower the score on the team evaluation (TEAMEVAL) indicator. There are no statistically significant correlations associated with total number of beneficial activities (ZTOTACT) and benefits to the resource (BRESOURC). Population density is positively correlated with BINCOM, indicating that the greater the density, the more project activities the *barangay* captain associated with income benefits for the community. Number of religions (an indicator of social

heterogeneity), percent of houses with closed septic systems, and the change in population density since 1990 are all negatively correlated with the Access/Equity component score (ACCEQI). This indicates that as the values on the predictors increase, the Access/Equity component score decreases. Only one variable is statistically significantly correlated with the Quality of Life component score (QUALIFE), presence of tourism, which has a negative coefficient. This indicates that sites with tourism score lower on that indicator.

There are no statistically significant correlations with the percent of project activities sustained (SUSTAIND). Turning to the post-project status of the resource indicators (T2RESMED and T2CORAL), we find that distance from the municipality is positively correlated with perceptions of a positive change in fish abundance (T2RESMED) and negatively correlated with the basic development component score. This indicates that in this data set, villages farther from the municipal center, with lower levels of basic development are more likely to perceive positive changes in fish abundance. Positive changes in the status of the coral are associated with higher levels of tourism, a lower number of religions in the community (an indicator of social homogeneity) and lower scores on the basic development component scale. There are no statistically significant correlations with success of project-sponsored group or association (GRPSUCCU).

Turning to the composite measures of sustainability, the Compliance and Access component score (COMPACC) is lower where there is a larger number of religions (cultural heterogeneity), and a smaller change in population density since 1990. It is higher where the level of tourism and standard of livings are higher. Finally, the Sustained Activities score (SUSTACT) is lower and the Resource and Governance score (RESGOV) is higher where tourism is present.

Table 4a. Zero-order correlations between ICM sustainability indicators and socioeconomic and demographic variables.

	TEAMEVAL	ZTOTACT	BRESOURC	BINCOM	ACCEQI	QUALIFE
Village population 2000	-0.305*	-0.094	0.079	0.101	-0.103	-0.018
Village area	0.031	-0.126	0.059	-0.257	0.022	0.055
Immigration present	-0.034	0.076	0.050	-0.100	-0.135	0.080
Distance to municipal center	0.099	0.233	0.054	0.106	-0.017	-0.078
Number of religions	-0.163	-0.305	-0.074	-0.074	-0.509**	0.062
Percent Catholic	-0.066	-0.142	-0.181	-0.152	0.101	-0.046
Percent fishers	-0.005	0.134	0.080	0.309	-0.031	0.190
Rank importance of fishing	-0.075	-0.237	-0.044	-0.288	0.064	-0.120
Tourism present	-0.031	-0.193	-0.081	0.145	-0.185	-0.358*
Houses with electricity (%)	-0.071	0.062	0.064	0.027	-0.117	0.060
Houses with septic system (%)	0.158	0.301	-0.134	0.130	-0.349*	0.027
Total market destinations	-0.113	-0.275	-0.080	-0.162	-0.090	0.006
Level of tourism	0.080	0.126	0.088	0.144	0.145	-0.209
Standard of living	0.085	0.279	0.190	0.150	0.212	-0.061
Village population density	0.009	0.265	-0.110	0.323*	0.102	-0.110
Change in population density	-0.154	0.151	-0.077	0.112	0.066	0.132
Children mod/sev underweight %	-0.060	-0.109	-0.068	0.087	-0.170	-0.157
Children underweight (%)	-0.095	0.148	-0.237	0.165	0.045	0.021
Basic development scale	-0.349*	-0.011	0.027	0.043	-0.248	-0.052
External links scale	-0.076	-0.015	-0.064	-0.046	-0.072	0.022
Advanced development scale	-0.462**	-0.265	-0.117	-0.004	-0.211	0.023
Pre-project status of fishery	-0.296	-0.155	0.244	-0.248	0.156	0.119
Population change 1980-2000 %	0.192	0.074	0.197	-0.092	-0.034	0.127
Population change 1990-2000 %	0.165	0.045	0.047	-0.046	-0.341*	0.209

*=p<0.05 **=p<0.01 N=42

Table 4b. Zero-order correlations betweenICM sustainability indicators and socioeconomic and demographic variables.

	SUSTAIND	T2RESMED	T2CORAL	GRPSUCCU	KNOWRULE	COMPLIU
Village population 2000	-0.216	-0.042	0.031	-0.239	0.043	0.406**
Village area	0.058	0.068	0.110	-0.126	-0.037	0.151
Immigration present	-0.028	-0.050	0.059	0.009	-0.196	0.207
Distance to municipal center	0.242	0.462**	0.292	0.071	0.214	0.092
Number of religions	-0.183	-0.121	-0.354*	-0.092	0.092	-0.058
Percent Catholic	0.131	0.285	0.014	-0.172	0.068	-0.183
Percent fishers	0.139	0.239	-0.026	0.067	0.322*	0.162
Rank importance of fishing	-0.246	-0.160	-0.022	-0.224	-0.276	-0.289
Tourism present	-0.151	0.100	0.268	0.045	-0.078	0.084
Houses with electricity (%)	-0.059	-0.210	0.038	-0.003	-0.266	0.095
Houses with septic system (%)	-0.013	-0.130	-0.028	0.070	-0.197	-0.074
Total market destinations	-0.104	0.064	0.015	-0.020	-0.091	-0.117
Level of tourism	0.050	0.104	0.376*	0.231	-0.247	0.311*
Standard of living	0.078	-0.019	0.192	0.155	-0.221	0.239
Village population density	0.102	0.097	0.078	0.108	0.139	-0.057
Change in population density	0.149	0.120	-0.141	0.031	0.170	-0.000
Children mod/sev underweight %	-0.245	-0.057	0.061	-0.087	-0.124	0.021
Children underweight (%)	0.088	0.084	0.001	-0.137	-0.055	-0.086
Basic development scale	-0.195	-0.328*	-0.313*	-0.139	-0.303	-0.004
External links scale	-0.162	-0.194	-0.012	-0.282	-0.255	-0.101
Advanced development scale	-0.291	-0.038	-0.091	-0.293	-0.165	-0.052
Pre-project status of fishery	-0.077	-0.187	-0.297	-0.282	0.036	-0.151
Population change 1980-2000 %	0.103	0.292	0.210	0.211	0.280	0.327*
Population change 1990-2000 %	0.271	0.174	-0.083	-0.002	0.343*	-0.026

*p=0.05 **p=0.01 N=42

Table 4c. Zero-order correlations between ICM sustainability indicators and socioeconomic and demographic variables.

	COMPL2U	LEGALFTOT	LEGALMTOT	COMPACC	SUSTACT	RESGOV
Village population 2000	0.150	0.012	-0.083	0.112	-0.262	0.020
Village area	-0.025	-0.110	-0.246	0.074	0.007	-0.271
Immigration present	0.147	-0.105	-0.140	0.153	0.186	-0.125
Distance to municipal center	-0.088	0.087	0.126	-0.021	0.179	0.309
Number of religions	-0.164	-0.235	-0.243	-0.396*	-0.122	-0.032
Percent Catholic	-0.084	0.075	0.185	-0.152	-0.039	0.122
Percent fishers	0.174	0.009	-0.146	-0.036	0.148	0.165
Rank importance of fishing	-0.352*	-0.161	0.045	-0.118	-0.174	-0.139
Tourism present	0.267	0.368*	0.448**	0.078	-0.403*	0.359*
Houses with electricity (%)	0.169	0.098	0.293	0.089	-0.103	-0.046
Houses with septic system (%)	-0.307	-0.127	0.159	-0.170	0.241	0.171
Total market destinations	-0.174	-0.350*	-0.179	-0.177	-0.005	-0.248
Level of tourism	0.477**	0.344*	0.274	0.440**	-0.221	0.097
Standard of living	0.147	0.322*	0.289	0.350*	-0.025	0.007
Village population density	-0.121	0.191	0.082	0.014	0.099	0.266
Change in population density	-0.086	-0.060	-0.108	-0.110	0.140	0.056
Children mod/sev underweight %	-0.081	-0.187	-0.129	0.037	-0.229	-0.133
Children underweight (%)	-0.069	-0.048	-0.048	-0.041	-0.015	-0.044
Basic development scale	-0.085	0.132	0.169	-0.108	-0.136	0.104
External links scale	-0.018	0.024	-0.067	-0.023	-0.205	-0.031
Advanced development scale	-0.042	-0.145	-0.309*	-0.078	-0.218	-0.146
Pre-project status of fishery	-0.279	-0.379*	-0.248	-0.113	0.026	-0.290
Population change 1980-2000 %	0.201	0.231	0.095	0.154	0.152	0.210
Population change 1990-2000 %	-0.033	-0.114	-0.049	-0.368*	0.145	0.123

*=p<0.05 **=p<0.01 N=42

Table 5a. Zero-order correlations between political stability, social cohesion, and ICM sustainability indicators.

	TEAMEVAL	ZTOTACT	BRESOURC	BINCOM'	ACCEQI	QUALIFE
Barangay capt. turnover	-0.071	-0.161	-0.089	0.267	0.032	0.179
Annual village meetings (fq.)	0.071	0.033	0.211	-0.122	0.022	0.107
Village meeting attendance %	0.103	-0.188	-0.331*	-0.046	-0.203	0.016
Visits by province officials	0.211	0.124	-0.120	0.228	0.206	-0.163
Village level of conflict	-0.031	0.101	-0.181	0.200	-0.205	-0.041
Village level of tension	0.120	0.018	-0.033	0.075	0.119	-0.249
Other CRM projects in village	0.018	0.127	0.014	0.156	0.003	0.137
Total number of associations	-0.074	-0.104	0.091	-0.060	-0.166	0.111
Pre-project bayanihan	0.119	-0.127	0.100	-0.200	-0.149	0.029

*=p<0.05 **=p<0.01 N=42

Table 5b. Zero-order correlations between political stability, social cohesion, and ICM sustainability indicators.

	SUSTAIND	T2RESMED	T2CORAL	GRPSUCCU	KNOWRULE	COMPL1U
Barangay capt. turnover	-0.031	-0.239	-0.212	-0.210	-0.156	-0.165
Annual village meetings (fq.)	0.019	0.284	-0.044	0.061	0.190	-0.037
Village meeting attendance %	-0.258	0.117	0.003	-0.131	0.282	-0.301
Visits by province officials	-0.110	0.096	0.092	0.147	0.121	0.084
Village level of conflict	-0.051	0.015	-0.123	-0.065	0.179	0.121
Village level of tension	-0.275	-0.109	0.184	0.047	-0.225	0.068
Other CRM projects in village	0.111	-0.034	0.127	0.275	-0.263	0.180
Total number of associations	-0.197	-0.474**	-0.180	-0.250	-0.046	-0.159
Pre-project bayanihan	-0.252	-0.189	-0.200	-0.178	0.250	-0.272

*=p<0.05 **=p<0.01 N=42

Table 5c. Zero-order correlations between political stability, social cohesion, and ICM sustainability indicators.

	COMPL2U	LEGALFTO	LEGALWTO	COMPACC	SUSTACT	RESGOV
Barangay capt. turnover	-0.329*	-0.173	-0.089	-0.254	0.025	-0.124
Annual village meetings (fq.)	-0.097	-0.331*	-0.385*	-0.130	0.161	-0.127
Village meeting attendance %	-0.345*	-0.179	-0.202	-0.253	0.059	0.102
Visits by province officials	0.178	0.286	0.291	0.153	-0.114	0.300
Village level of conflict	0.042	0.008	0.007	-0.133	-0.100	0.212
Village level of tension	0.245	0.216	0.027	0.319	-0.210	0.032
Other CRM projects in village	0.102	0.069	0.125	0.173	0.253	0.131
Total number of associations	0.027	-0.174	-0.201	-0.056	-0.138	-0.227
Pre-project bayanihan	-0.272	-0.225	-0.180	-0.255	-0.104	-0.118

*=p<0.05 **=p<0.01 N=42

Political Stability and Social Cohesion. Turning to sociocultural variables related to political stability and social cohesion (Tables 5a through 5c), we find that degree of compliance with second rule mentioned (COMPL2U) decreases as the turnover in *barangay* captains increases. The degree of legal fishing by both community members and outsiders (LEGALFTOT and LEGALWTOT, respectively) decreases (illegal fishing increases) as the number of formal *barangay* meetings increases. The degree of compliance with the first two regulations mentioned by resource users (COMPL1U and COMPL2U) decreases as percent community attendance at formal *barangay* meetings increases. Visits by provincial officials is positively related to the Resource and Governance component score (RESGOV), while the degree of tension is positively related to the Compliance and Access component score (COMPACC). Finally, the total number of associations and other cooperative groups in the village is negatively related to perceptions of post project increases in fish abundance (T2RESMED).

Project related variables. Zero-order correlations between project related variables and sustainability indicators are found in Tables 6a through 6c. As expected on the basis of previous research (Pollnac, et al., 2001) a relatively large number of project related variables are statistically significantly correlated with the sustainability indicators. This will make the discussion of the relationships relatively tedious, but all the relationships are important and should be considered.

First, tourist business involvement in ICM activities is negatively related to the Quality of Life and Sustained Activities component scores (QUALIFE and SUSTACT, respectively) and positively related to compliance with the first rule mentioned and the compliance and access composite measure of sustainability (COMPL1U and COMPACC, respectively).

Table 6a. Zero-order correlations between ICM sustainability indicators and project activities.

	TEAMEVAL	ZTOTACT	BRESOURC	BINCOM	ACCEQI	QUALIFE
Tourist industry involvement	-0.061	0.029	0.109	-0.012	0.063	-0.377*
Barangay capt. involvement	0.342*	0.430**	0.307*	0.194	0.246	-0.031
Mayor involved in ICM project	0.164	-0.018	-0.176	0.079	0.012	-0.062
CVRP	0.181	0.007	-0.139	-0.139	-0.177	0.014
CRMP	0.014	0.266	0.294	0.209	0.313*	-0.182
FSP	-0.064	-0.128	0.050	0.050	0.481**	-0.150
LCCAMC	-0.154	-0.128	-0.250	0.050	-0.541**	-0.037
Number of project participants	-0.036	0.046	-0.017	0.259	0.218	0.325*
Association makes decisions	-0.031	-0.139	0.197	-0.251	0.013	0.059
Community makes decisions	-0.222	-0.028	0.140	-0.033	0.330*	0.235
Project staff makes decisions	0.215	0.188	0.271	-0.014	0.320*	0.029
Village gvt. Makes decisions	0.048	-0.236	0.014	-0.129	0.062	-0.322*
Supra-village gvt. makes dec.	0.087	0.268	0.117	0.253	0.083	0.078
Total number decision makers	0.066	0.020	0.392*	-0.114	0.372*	0.017
Monitoring leads to change	0.253	0.570**	0.050	0.283	0.539**	0.123
Community does monitoring	-0.120	-0.075	0.171	0.059	0.166	0.073
Number of project trainings	0.338*	0.127	0.193	-0.075	0.284	0.040
Number of ongoing trainings	0.096	0.153	0.068	0.160	0.506**	-0.002
Project staff turnover	0.062	-0.060	0.032	0.032	0.037	0.233
Networking with other ICM proj	0.192	0.164	0.183	-0.050	0.182	-0.073
Adequate inputs	0.284	0.370*	0.382*	0.081	0.364*	0.325*
Restrictiveness of ICM rules	0.079	0.278	-0.046	0.265	0.125	-0.089

*=p<0.05 **=p<0.01 N=42

Table 6b. Zero-order correlations between ICM sustainability indicators and project activities.

	SUSTAIND	T2RESMED	T2CORAL	GRPSUCCU	KNOWRULE	COMPL1U
Tourist industry involvement	-0.117	-0.019	0.280	-0.009	-0.130	0.348*
Barangay capt. involvement	0.341*	-0.032	0.245	0.375*	-0.003	0.408**
Mayor involved in ICM project	-0.033	-0.057	0.033	-0.197	0.032	-0.173
CVRP	-0.175	0.389*	0.258	0.048	0.197	0.109
CRMP	0.007	0.018	0.305*	0.284	-0.132	0.590**
FSP	-0.060	-0.318*	-0.153	-0.265	-0.061	-0.316*
LCCAMC	-0.067	-0.348*	-0.317*	0.035	-0.128	-0.120
Number of project participants	0.414**	0.039	0.007	0.032	0.325*	0.097
Association makes decisions	-0.035	-0.524**	-0.198	-0.119	-0.311*	-0.183
Community makes decisions	0.043	-0.193	-0.187	-0.280	-0.142	-0.249
Project staff makes decisions	0.058	0.430**	0.497**	0.108	0.212	0.130
Village gvt. Makes decisions	-0.088	-0.062	0.105	0.189	-0.020	-0.006
Supra-village gvt. makes dec.	0.195	-0.209	0.020	0.023	-0.106	0.157
Total number decision makers	0.084	-0.343*	0.110	-0.038	-0.211	-0.076
Monitoring leads to change	0.475**	0.073	0.260	0.334*	-0.096	0.360*
Community does monitoring	-0.109	-0.493**	-0.353*	-0.070	-0.108	-0.197
Number of project trainings	0.066	-0.183	0.180	-0.022	0.113	-0.084
Number of ongoing trainings	0.150	-0.033	0.212	-0.109	-0.108	-0.056
Project staff turnover	-0.036	-0.215	-0.068	0.092	-0.130	-0.162
Networking with other ICM proj	0.104	0.043	0.179	0.212	-0.171	-0.105
Adequate inputs	0.266	0.307*	0.445**	0.469**	0.055	0.292
Restrictiveness of ICM rules	-0.052	-0.067	0.055	0.161	-0.255	0.029

*=p<0.05 **=p<0.01 N=42

Table 6c. Zero-order correlations between ICM sustainability indicators and project activities.

	COMPL2U	LEGALFTOT	LEGALWTOT	COMPACC	SUSTACT	RESGOV
Tourist industry involvement	0.289	0.340*	0.265	0.347*	-0.377*	0.132
Barangay capt. involvement	0.269	0.422**	0.396**	0.378*	0.210	0.258
Mayor involved in ICM project	-0.304*	-0.056	-0.124	-0.140	-0.076	-0.008
CVRP	0.070	-0.192	-0.260	0.091	0.080	0.062
CRMP	0.712**	0.365*	0.269	0.685**	-0.141	0.048
FSP	-0.133	0.045	-0.020	0.002	-0.187	-0.211
LCCAMC	-0.354*	-0.045	0.180	-0.372*	-0.007	0.156
Number of proj. participants	0.182	0.110	-0.048	-0.072	0.515**	-0.021
Association makes decisions	-0.080	-0.147	-0.081	-0.022	0.019	-0.377*
Community makes decisions	-0.206	-0.116	-0.003	-0.073	-0.001	-0.235
Project staff makes decisions	0.369*	0.102	-0.125	0.361*	0.066	0.024
Village gvt. makes decisions	-0.016	0.211	0.315*	0.134	-0.039	0.202
Supra-village gvt. makes dec.	0.188	0.146	-0.143	0.143	0.090	-0.150
Total number decision makers	0.132	0.093	-0.033	0.274	0.069	-0.274
Monitoring leads to change	0.453**	0.465**	0.242	0.515**	0.286	-0.017
Community does monitoring	-0.107	-0.172	0.002	-0.049	0.025	-0.178
Number of project trainings	0.125	0.096	0.115	0.175	0.087	-0.015
Number of ongoing trainings	0.081	-0.045	0.079	0.163	-0.039	-0.216
Project staff turnover	-0.073	-0.219	-0.004	-0.027	0.046	-0.216
Networking with ICM proj	0.025	-0.092	-0.118	0.127	0.048	-0.310
Adequate inputs	0.317*	0.073	-0.180	0.457**	0.427**	-0.142
Restrictiveness of ICM rules	0.205	0.145	0.030	0.288	-0.057	-0.099

*=p<0.05 **=p<0.01 N=42

Involvement of the *barangay* captain seems to have a positive effect on a large number of sustainability measures, including the team evaluation, the total number of successful activities, as well as activities having resource benefits, the percentage of project activities sustained, the success of the project related group, level of compliance with the first ordinance mentioned, amount of legal fishing activity, and the compliance and access composite measure of sustainability. It is interesting that involvement of the mayor has no positive impact and negatively impacts one of the compliance measures (COMPL2U).

Turning to specific projects, CVRP has a positive impact on post-project perceptions of fish abundance, while CRMP project activities are positively related to the access/equity component score, post-project perceptions of the status of the coral, level of compliance with ICM ordinances, degree of legal fishing, and the compliance and access composite measure of sustainability. CRMP is a project that was a follow-up to CVRP at many CVRP project sites except on Bohol and was involved in the Bais Bay and Batangas sites. FSP is positively related to the access/equity component score, and negatively related to post project perceptions of increases in fish abundance. ASEAN-US ICM Project is negatively related to the access/equity component score, post project perceptions of increases in fish abundance and the status of the coral, compliance with the second ordinance mentioned, and the compliance and access composite measure of sustainability.

Number of project participants has only positive effects. This variable is positively correlated with the quality of life component score, percent of sustained project activities, knowledge of ICM rules, and the sustained activities composite measure of sustainability.

Project decision making by the project related association seems to have negative impacts on several of the sustainability indicators. It is negatively correlated with post project perceptions of increases in fish abundance, knowledge of ICM rules, and the

resource and governance composite measure of sustainability. In contrast, decisions concerning project activities made by the community have a positive impact on the access/equity component score. Decisions made by project staff are also positively related to the access/equity component score, as well as post project perceptions of increases in fish abundance and the status of the coral, level of compliance with the second ordinance mentioned, and the compliance and access composite measure of sustainability. Decisions made by the village government are negatively related to the quality of life component score and positively related to the level of legal fishing by villagers. There are no statistically significant correlations with decisions made by government authorities above the village level. Finally, the total number of levels involved in project related decisions is positively related to the access/equity component score and negatively related to post project perceptions of increases in fish abundance.

The existence of project monitoring programs, which influence changes in project activities, is positively related to the total number of beneficial activities, the access/equity component score, the percent of sustained activities, success of the project-related association, the level of compliance with ICM rules, the amount of legal fishing by villagers and outsiders in village waters, and the compliance and access composite measure of sustainability. It is interesting that involvement of community members in the monitoring process seems to have negative impacts on post project perceptions of increases in fish abundance and the status of the coral.

Total number of training sessions is positively related to the research team's overall evaluation of the project, and the number of ongoing training sessions is positively related to the access/equity component score. Adequacy of funding and other project inputs positively impacts the total number of activities, activities benefiting the resource, the access/equity and quality of life component scores, post project perceptions of increases in fish abundance and status of the coral, success of project-related

association, level of compliance with ICM rules, and the compliance and access and sustained activity composite measures of sustainability. Finally, staff turnover, networking with other ICM projects, and level of restrictiveness of ICM rules seem to have no statistically significant effect on any of the sustainability indicators.

Table 7. Multiple predictors of ICM sustainability indicators.

DEPENDENT VARIABLE: TEAMEVAL
(overall evaluation by research team)

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Basic development component score	-0.349	-2.671	0.011
Advanced development component score	-0.462	3.540	0.001

R=0.579 R^2=0.335 Adj. R^2=0.301 F=9.833 p < 0.001 N=42

DEPENDENT VARIABLE: ACCEQI
(Access/equity component score)

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Number of religions	-0.256	-2.354	0.025
FSP	0.382	3.382	0.002
ASEAN-US ICM Project	-0.225	-1.944	0.061
Project monitoring influenced changes	0.262	2.377	0.024
Adequate inputs	0.289	2.481	0.019

R=0.826 R^2=0.683 Adj. R^2=0.633 F= 13.765 p < 0.001 N=38

DEPENDENT VARIABLE: QUALIFE
(Quality of life component score)

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Tourism business involved in ICM	-0.394	-2.704	0.011
Adequate inputs	0.344	2.366	0.024

R=0.510 R^2=0.260 Adj. R^2=0.218 F=6.162 p = 0.005 N=38

DEPENDENT VARIABLE: T2FICO
(Post-project level of improvementin fish and coral resources

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Distance from municipal center	0.351	2.814	0.008
ICM decisions made by project staff	0.484	3.877	<0.001

R=0.635 R^2=0.404 Adj. R^2=0.373 F=13.208 p < 0.001 N=42

DEPENDENT VARIABLE: COMPACC
(Compliance and access composite sustainability component score)

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Number of religions	-0.284	-2.740	0.010
CRMP	0.534	4.946	<0.001
Project monitoring influenced changes	0.235	2.170	0.038
Adequate inputs	0.218	2.074	0.046

$R=0.836$ $R^2=0.699$ Adj. $R^2=0.660$ $F=18.013$ $p < 0.001$ $N=36$

***DEPENDENT VARIABLE:* SUSTACT**
(Sustained activities composite sustainability component score)

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Tourism business involved in ICM	-0.310	-2.466	0.019
Number of project participants	0.431	3.426	0.002
Adequate inputs	0.418	3.390	0.002

$R=0.719$ $R^2=0.517$ Adj. $R^2=0.472$ $F=11.424$ $p < 0.001$ $N=36$

***DEPENDENT VARIABLE:* SUSTACT**
(Resource and governance composite sustainability component score)

INDEPENDENT VARIABLE	STANDARDIZED COEFFICIENT	t	p (2-tail)
Tourism present	0.337	2.239	0.032
ICM decisions made by association	-0.356	-2.366	0.024

$R=0.505$ $R^2=0.255$ Adj. $R^2=0.210$ $F=5.657$ $p = 0.008$ $N=36$

Summary of Bivariate Analyses. The bivariate analyses indicated that there are some rather complex relationships between the independent variables and the sustainability indicators. Specific sustainability indicators are variously related to different sets of independent variables. Most of the relationships are in the expected direction, but a few are counter to expectations: e.g., the negative relationship between some sustainability indicators and the decision-making authority of project related associations and community based monitoring. The various bivariate relationships, while rather tedious to examine, can be of use to practitioners in the field. They can suggest specific actions which influence specific components of ICM sustainability. The purpose of this paper, however, is to go beyond the particular and try to make some generalizations about combinations of variables that influence ICM sustainability.

Analysis

Multivariate Analyses. It is rarely only one variable that influences a dependent variable as complex as an ICM sustainability indicator. This is evident in the relatively large number of independent variables that are statistically significantly related to some of the indicators in the above analyses. As a means of determining the combinations of variables that influence ICM sustainability, we will use a form of regression analysis. In this section of the paper we will only analyze a set of the composite indicators described and analyzed above. Confining the analysis to these composite indicators will move the analysis from the particular to the more general. The sustainability indicators we will analyze here are the composite team evaluation (TEAMEVAL), the access/equity and quality of life component scores (ACCEQI and QUALIFE), a resource improvement measure composed of the sum of the evaluation of the change in post-project fish abundance and status of the coral (T2FICO), and the three composite ICM sustainability indicators (COMPACC, SUSTACT, and RESGOV).

The technique used in the analysis is a stepwise (forward) regression analysis. In the application used here, all independent variables manifesting statistically significant zero order correlations with a specific ICM sustainability indicator are intercorrelated with the dependent variable (the specific ICM sustainability indicator). The one with the highest correlation (the one that explains the most variance in the specific ICM sustainability indicator) is entered first into the multiple regression equation. Then the effects of the entered variable are controlled, and the variable with the highest partial correlation with the specific ICM sustainability indicator is entered into the equation. The R^2 (squared multiple correlation coefficient, which is equal to the amount of variance explained in the resource beliefs component score) for the two independent variables and the dependent is then calculated. The next step enters the independent variable that has the highest partial correlation with the specific ICM sustainability indicator controlling for

variables already entered. This stepwise procedure is continued until some pre-set criterion is reached. In this case the criterion was that the variable to be entered has a $p < 0.05$. Partial correlations were carefully examined at each step to insure that multi-collinearity did not have an effect on the analysis. The results of these analyses for the seven composite ICM sustainability indicators are in Table 7. Note that sample size (N) varies in table 7. This is due to the fact that cases with missing values on any of the variables included in the regression are not used in the analysis.

The stepwise regression procedure selected the two development component scores as the best combination of variables for predicting the research team's evaluation of overall project impact. The adjusted R^2 is 0.301 indicating that about 30 percent of the variance in the overall research team's evaluation (TEAMEVAL) can be accounted for by this combination of variables.[4] Note that the standardized coefficients are negative. That indicates that increasing levels of development have a negative impact on the overall research team's evaluation (TEAMEVAL). These results do not mean that the other variables which are statistically significantly correlated ($p<0.05$) with the overall research team's evaluation (as presented in Tables 4a, 5a, and 6a) are not important. When the stepwise procedure entered the basic development component score in the first step and controlled for its effects on the overall research team's evaluation (TEAMEVAL), the correlations between the overall research team's evaluation (TEAMEVAL) and population size, *barangay* captain involvement in project activities, and number of training sessions reduced to a level that they were no longer statistically significant. In part this is due to the fact that the advanced development component score is correlated with both village population ($r=0.39$, $p=0.01$) and *barangay* captain involvement in project activities ($r=-0.42$, $p=0.005$).

Almost two-thirds of the variance in the access/equity component (ACCEQI) is accounted for by 5 independent variables. The negative standardized coefficient associated with

number of religions (a cultural homogeneity/heterogeneity indicator) indicates that cultural heterogeneity has a negative impact on access/equity, as predicted by the model developed in the background section of this paper. Also, the fact that the project was adaptable (project monitoring influenced changes) and adequate inputs (both financial and material) had a positive impact (positive standardized coefficients) fits the model. This pattern of expected results is repeated throughout the analyses presented in Table 7; hence, we will not discuss each regression result separately, but will attempt a synthesis in our concluding remarks.

Synthesis and Conclusions

Significant in the analyses are some unexpected findings, findings that run counter to accepted wisdom, which have been summarized in the background section. It has been argued that level of community development has a positive influence on the success of CRM projects. Some recent comparative studies (e.g., Pollnac, et al. 2001) have found no relationship with overall community development, and the current research suggests that there is a negative relationship. This relationship suggests that more research is necessary to explain the complex interactions between community development and ICM sustainability.

There have also been inconsistent reports concerning the relationship between tourism and the success of CRM projects. Some feel that tourism can provide alternative incomes to replace income lost by some types of resource management. Others argue that tourism can result in conflicts in resource use that can turn villagers against CRM efforts. The analyses presented here indicate that tourism has a positive impact, but involvement of tourist business interests in CRM has a negative impact. This is probably the result of conflicts of interest. In several of the villages in the sample, the tourism industry was intent on expanding reserve areas and posted guards to keep villagers from fishing in existing reserves. This created a great deal of tension in the communities. Clearly, the role of tourism in ICM needs to be carefully examined in future

comparative studies, especially its potential for having negative impacts on local inhabitants, which may in turn harm ICM efforts. In most developing country contexts, successful ICM depends on community support.

Equally interesting are the findings concerning project decision making. Most social science researchers will argue that community empowerment is not only desirable, but is essential to project success. Pollnac, et al. (2001) found that level of peoples' participation in community affairs was strongly related to success of MPAs. But participation in project decision making, as examined in this research, suggests that the issue is more complex than past findings and current ideology would suggest. The regression analyses presented here suggest that while ICM decisions made by project staff are positively associated with an ICM project sustainability indicator (post-project improvement in resources), decision making by a project-related village association has a negative impact. Once again, these findings suggest that we must revisit some of our assumptions with more rigorous research.

Overall, however, our findings, which are based on quantitative data collected in 42 villages, support recommendations and findings readily found in the more qualitative, case study based social science literature. To be sustainable, ICM projects need adequate inputs, adaptive management, and more local participants. Since we know that sociocultural heterogeneity can negatively impact community-based ICM, where we find it, we must put greater effort into community organizing to create more social solidarity to support project activities. Since we already know most of these things (except for the surprising findings noted above), we might ask, "why did we find such a great range of project success across the villages in our sample?" The simple reply, which is supported by our data, is that what we know to be "good practices" are not always used in implementation of ICM projects. And where they are, if we still find mixed results as we have in this report, it means that we must refine our research

methods to determine other, unexpected determinants of ICM project sustainability.

[1] As is common with responses to this question, some respondents probably confounded abundance with catch. Since the fish are underwater and not easily observed (by net and line fishers), they usually equate relative abundance with catch.

[2] For the most part we followed a common practice of naming factors based on the item that loads highest on the factor. We are not really satisfied with this practice, but an examination of the content of the preponderance of items loading highly on each component provides some support for the naming. Some may prefer to simply think of each component as a weighted sum of the included items.

[3] As indicated in the discussion of sustainability indicators, the research team conducted the ranking process at completion of data acquisition at each site. They discussed the indicator and came to a consensus concerning the ranking.

[4] R-squared is traditionally adjusted when there is more than one predictor variable. This is done to account for the fact that as the number of variables approaches the number of cases there is an increased probability that some linear combination of the variables will account for a very large proportion of the variance; thus, inflating the R-squared. The adjustment is used to reduce the R-squared to a more realistic level. The formula: Adj. $R^2 = R^2 - ((p-1)/(n-p)) \times (1 - R^2)$, where p is the number of independent variables.

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ECONOMIC BENEFITS AND INTEGRATED COASTAL MANAGEMENT SUSTAINABILITY

Robert S. Pomeroy, Enrique G. Oracion,
Demberge A. Caballes, and Richard B. Pollnac

ABSTRACT

This paper will examine the factors influencing the sustainability of integrated coastal management (ICM) projects in the Philippines, specifically in two locations, Bais Bay area of Negros Oriental Province and Mabini-Tingloy (known as Anilao) area of Batangas Province, where a number of ICM projects have been implemented since the mid-1980s. Indicators for ICM project impacts are developed and analyzed to determine their relationships with ICM project sustainability. Years of residency in the community, participation in ICM projects with resource management and enterprise/alternative livelihood activities, and the total number of projects participated in were the strongest predictors of perception of ICM project sustainability at the two sites in the Philippines. Participation of community members in the ICM project design and implementation and real or perceived economic benefits from the project influence participants to sustain project activities after project completion

Introduction

Integrated coastal management (ICM) is an accepted management framework to address coastal and marine environmental problems and conflicts and to achieve sustainable use of coastal resources in developing countries (Christie and White 2000; Cicin and Knecht 1998; Chua 1996a, 1996b; IWCO 1998; Kay and Alder 1999). However, due, in part, to internal financial constraints, most ICM projects in developing countries are supported by external donors and lenders. The dependence on external financial and technical assistance creates both the potential for and the reality of unsustainability of ICM institutions and policies as projects are terminated and support staff and funding are withdrawn. For example, Carlos and Pomeroy (1996) found that

that the majority of community-based coastal resource management projects in the Philippines were not maintained after the project funding and external technical assistance had been terminated.

A broad body of literature has been developed that documents and analyzes the collective experience and lessons learned worldwide with ICM (Burbridge 1997, Olsen et al. 1997, PAP 1997, Hershman 1999, World Bank 1999). Although these studies have provided important information to support ICM, a literature search revealed a missing element in these studies (Simonetti and Christie 2001). There were no comparative, empirical studies focusing on the sustainability of ICM initiatives in developing countries. The literature review found that there are numerous studies outside of the field of ICM that are concerned with a broad spectrum of issues related to sustainability. For example, Ostrom (1992) and other researchers concerned with common property regimes have considered the factors that influence the sustainability of community-level common property institutions. While useful, these efforts alone cannot capture and reflect the breadth and complexity of the practice of ICM – which encompasses multiple ecological, institutional, and social levels – and the intrinsic demands of ensuring that ICM efforts are sustained beyond a project's termination. If ICM is to be fully accepted and integrated by governments in developing countries into their natural resource management efforts, then the issue of sustainability of ICM must be addressed. An understanding of the factors that influence ICM sustainability will contribute to improving the design of ICM for more sustainable efforts.

To address the issue of ICM sustainability, a multidisciplinary group of researchers, led by the University of Washington, undertook a two year project in integrated coastal management sustainability. The objective of the project was to focus on the question of sustainability of ICM in the Philippines and Indonesia through empirical research, assisting ongoing ICM efforts in these countries, and improving human and institutional capacity. The project analyzed different aspects of what influences sustainability

of ICM through several "cells" of research (legal, socio-cultural, institutional, economic, biophysical). Different research team members focused on individual cells and these findings were later integrated and compared across cells. The first year of the project focused on the Philippines. The initial findings from the Philippines research were tested in Indonesia in the second year of the project.

Sustainability of ICM projects by local residents depends on a number of factors including acceptance of project activities, level of participation in project design and implementation, compliance with regulations, level of economic benefits received, and how equitably the economic benefits are distributed in the community. Clearly, if local residents believe that the ICM project does not address local concerns or has no positive impact on their well-being, they will be unlikely to support or become involved in project activities. They will be even less likely to sustain project activities into the future after ICM project funding ceases. This paper will examine the factors influencing the sustainability of ICM projects in the Philippines, specifically, in two locations, Bais Bay area of Negros Oriental Province and Mabini-Tingloy (known as Anilao) area of Batangas Province, where a number of ICM projects have been implemented since the mid-1980s. Indicators for ICM project impacts are developed and analyzed to determine their relationships with ICM project sustainability.

Methods

Study Sites. A review of ICM projects in the Philippines identified over 100 projects implemented from the early 1980s to the present (Project Document, 2001). It was not possible with the resources available in this project to study all of these ICM projects in the country. The research team decided (using site selection criteria such as number and types of ICM projects in the area and length of time since project completion) to focus on two areas in the Philippines: Bais Bay area of Negros Oriental Province (see Figures 1 and 2, page 28, this issue) and Mabini-Tingloy

(known as Anilao) area of Batangas Province (see Figures 1 and 2, page 17 , this issue).

The Bais Bay area has a diversity of coastal habitats and is used for a variety of purposes including residential, aquaculture, fishing, recreation, and mangrove harvest. Bais Bay is surrounded by three municipalities – Manjuyod, Tanjay and Bais City. There have been several ICM projects in Bais Bay dating back to 1984. This research focused on three of the four ICM projects which have been implemented in the area (Table 1). These projects are: Central Visayas Regional Project (CVRP), Environmental and Resource Management Project (ERMP), and Coastal Resources Management Project (CRMP). All three of these projects emphasized resource management and enterprise/alternative livelihood activities.

Table 1. ICM projects studied in Bais Bay area

Year	Project	Lead Agency	Funding Source	Major Activities
1984-1992	Central Visayas Regional Project-I (CVRP)	Central Visayas Regional Project Office	World Bank	marine reserve, mangrove reforestation, artificial reefs, fish aggregating devices
1990-1992	Environmental and Resource Management Project (ERMP)	Silliman University	Canadian International Development Agency	marine and watershed management
1996-2002	Coastal Resources Management Project (CRMP)	Department of Environment and Natural Resources	US Agency for International Development	mangrove rehabilitation, enterprise development, technical assistance

The Anilao area, located on Balayan Bay, is utilized for residential, transportation, and recreational purposes. Mabini and Tingloy are two municipalities bordering the Bay. The Anilao area has a history of tourism activities, dating back to the 1960s. This is mainly due to its geographical closeness to Manila. There have been several ICM projects in the Anilao area dating back to 1990. This research focused on three of the five ICM projects which have been implemented in the area (Table 2). These projects are:

Community-based Coastal Resource Management Project of the Haribon Foundation, Balayan Bay Integrated Coastal Management Project of WWF/KKP, and the Community-based Coastal Resources Management Project of the Sulu Fund. These three projects emphasized community organizing and resource management activities.

Table 2. ICM projects studied in the Anilao area.

Year	Project	Lead Agency	Funding Source	Major Activities
1990-1995	Community-based Coastal Resource Management Project (CBCRM-H)	Haribon Foundation	US Agency for International Development; Government of the Philipppines	community organizing; organized cooperative; marine protected areas; organized resort owners association
1997-1999	Balayan Bay Integrated Coastal Management Project (BBICM)	WWF/KKP	WWF-US	community organizing; coastal area development council; coastal clean-up; surveillance equipment; organized local NGO
1999	Community-based Coastal Resources Management Project (CBCRM-S)	Sulu Fund		marine conservation

Structured interviews were conducted with a random sample of project participants and non-participants in the Bais Bay area and in the Anilao area. A sample of 60 people were interviewed (40 project participants and 20 non-participants) in each area. Interviews were conducted in two municipalities and four barangays around Bais Bay. Project participants were involved in one or more of the following projects – Central Visayas Regional Project (CVRP), Environmental and Resource Management Project (ERMP), and Coastal Resources Management Project (CRMP). Interviews were conducted in two municipalities and three barangays in the Anilao area. Project participants were involved in one or more of the following projects – Community-based Coastal Resource Management Project of the Haribon Foundation, Balayan Bay Integrated Coastal Management Project

of WWF/KKP, and the Community-based Coastal Resources Management Project of the Sulu Fund.

Measurement of Variables. Perceptions of ICM project impacts involved assessments of changes over time in 16 factors viewed as essential components to any ICM project (Pomeroy et al., 1997; Pollnac and Crawford 2000). The factors evaluated here are the following:

1. Participation in community affairs in general
2. Participation in coastal resource and fisheries management
3. Influence over community affairs in general
4. Influence over coastal resource and fisheries management
5. Access to resources
6. Control over coastal resource and fisheries
7. Fair allocation of access rights to coastal and fishery resources
8. Overall quality of life of the household
9. Household income
10. Income from coastal resources
11. Employment
12. Overall quality of fisheries resources
13. Compliance with coastal resource and fishery rules
14. Ease of collective decision-making on barangay problems
15. Quickness of resolving community conflicts on coastal resource and fishery-related issues
16. Knowledge of coastal resource and fishery management

The method used to measure the indicators takes advantage of the human ability to make graded ordinal judgments concerning both subjective and objective phenomena. Human behavior is based on graded ordinal judgments, not simply a dichotomous judgment of present or absent. This level of measurement allows one to make more refined judgments concerning ICM sustainability project impacts, as well as permits the use of more powerful statistical techniques to determine the relationships between perceived impacts and potential predictor variables. The technique

chosen for use in this study is a visual, self-anchoring, ladder-like scale which allows for making finer ordinal judgments, places less demand on informant memory, and can be administered more rapidly (Pomeroy et al., 1997; Pollnac and Crawford 2000). Using this technique, the respondent is shown a ladder-like diagram with 10 steps. The respondent is told that the first step represents the worst possible situation. For example, with respect to coastal resources, the respondent might be informed that the first step indicates an area with no fish, or other resources, that the water is so foul nothing could live in it. The highest step could be described as rich, clean water, filled with fish and other resources. The respondent would then be asked where the situation was before the ICM project and where it is today. The perceived change is the difference between today and the time before the ICM project.

Analysis of the data on ICM sustainability indicators involved first calculating mean values for the differences between each indicator for today (t2) and the pre-project time period (t1). A paired comparison t-test was calculated to determine whether the mean differences between the two time periods are statistically significant. As the next step in the analysis, the 16 indicators for both areas were combined and were submitted to a principal component (with varimax rotation) analysis to determine whether relationships between the indicators were such that they could be reduced to fewer, composite indicators for further analysis. Number of components were selected based on the scree-test. Component scores representing the position of each respondent on each component were created for each respondent. We refer to these scores as Project Impact Indicator Component Scores (PIICS). They are standardized scores with a mean of zero and a standard deviation of one. The relationship of the PIICS were intercorrelated with a set of independent variables. A stepwise regression analysis was conducted to determine the relative importance of the predictor variables in terms of their individual and combined ability to account for variance in the PIICS.

Results

The average age, education, years living in the community, and household size for all respondents in the two areas are presented in Table 3.

Table 3. Demographic Characteristics of Bais Bay and Anilao Area Respondents

	Bais Bay	Anilao
Age	48 (12.64)	43 (10.55)
Education	6 (2.53)	8.3 (3.25)
Years living in community	37 (16.50)	35.8 (11.3)
Household size	5.2 (2.24)	6 (2.8)
	n=60	n=60

Standard deviation in parentheses

The mean value and paired comparison t-test are presented first for Bais Bay and Anilao areas individually. The results of this analysis are combined for the principal component, correlation, and stepwise regression analyses.

Bais Bay Results. For the combined sample of participants and non-participants in the Bais Bay area, there was a statistically significant increase in perceived levels of 10 of the 16 indicators ($p<0.01$). There were large positive changes perceived in participation in community affairs in general, participation in coastal resource and fish management, influence over community affairs in general, influence over coastal resource and fish management, control over coastal resource and fisheries, compliance with coastal resource and fishery rules, ease of collective decision-making on barangay problems, quickness of resolving community conflicts on coastal resource and fishery-related issues, and knowledge of

coastal resource and fishery management. There was a large negative change perceived in overall quality of fishery resources. All other indicators showed no statistically significant changes in perceived level of indicators (Table 4).

Table 4. Perceived pre-project and post-project changes in indicators for all respondents

Indicator	T1	T2	T2-T1	P
Participation in community affairs-general	3.7	5.7	2	<0.01
Participation in resource and fish mgt	3.45	6.7	3.25	<0.01
Influence over community affairs-general	3.15	5.6	2.45	<0.01
Influence over resource mgt	3.32	6.3	2.98	<0.01
Access to resources	8.88	8.15	-0.73	
Control over resources	3.75	7.42	3.67	<0.01
Fair allocation of access rights	8.12	8.22	0.1	
Overall quality of life of HH	5.6	5.1	-0.5	
HH income	5.8	4.7	-1.1	
Income from coastal resources	5.96	4.98	-0.98	
Employment	2.4	2.98	0.58	
Overall quality of fish resources	6.7	4.47	-2.23	<0.01
Compliance with rules	3.63	7.28	3.65	<0.01
Ease of collective decision-making on barangay problems	5.02	6.68	1.66	<0.01
Quickness of resolving community conflicts on resource	5.12	7.17	2.05	<0.01
Knowledge of coastal resource and fish mgt.	4.03	7.48	3.45	<0.01

A similar analysis was conducted separating the participants and the non-participants (Table 5). The results reflect statistically significant changes similar to those found in Table 4. There does appear to be some differences between participants and non-participants for ease of collective decision-making on barangay problems and quickness of resolving community conflicts on resources with non-participants having no statistically significant change for these two indicators.

Table 5. Perceived Pre-project and Post-project Changes in Indicators for Participants and Non-participants

	Participants				Non-Participants			
Indicator	**T1**	**T2**	**T2-T1**	**P**	**T1**	**T2**	**T2-T1**	**P**
Participation in community affairs	3.6	6.13	2.53	<0.01	3.9	4.95	1.05	<0.01
Participation in resource and fish mgt	3.05	7	3.95	<0.01	4.25	6.1	1.85	<0.01
Influence over community affairs-general	2.93	6.48	3.55	<0.01	3.6	3.85	0.25	<0.01
Influence over resource mgt	2.9	6.83	3.93	<0.01	4.15	5.25	1.1	<0.01
Access to resources	8.7	8.25	-0.45		9.25	7.95	-1.3	
Control over resources	3.35	7.93	4.58	<0.01	4.55	6.4	1.85	<0.01
Fair allocation of access rights	8.15	8.28	0.13		8.05	8.1	0.05	
Overall quality of life of Household	5.5	5.2	-0.3		5.8	4.9	-0.9	
Household income	5.73	4.93	-0.8		5.95	4.35	-1.6	
Income from coastal resources	6.15	5.2	-0.95		5.6	4.55	-1.05	
Employment	1.85	2.55	0.7		3.5	3.85	0.35	
Overall quality of fish resources	6.73	4.9	-1.83	<0.01	6.65	3.6	-3.05	<0.01
Compliance with rules	3.15	7.65	4.5	<0.01	4.6	6.55	1.95	<0.01
Ease of collective decision-making on barangay problems	4.43	6.78	2.35	<0.01	6.2	6.5	0.3	
Quickness of resolving community conflicts on resources	4.55	7.38	2.83	<0.01	6.25	6.75	0.5	
Knowledge of coastal resource and fish mgt	3.58	7.58	4	<0.01	4.95	7.3	2.35	<0.01

The results of this analysis indicate that respondents are participating more and having more influence over community affairs and resource management. Enforcement of rules has improved, as has collective decision-making. Overall, the quality of fishery resources has declined. Household income, income from coastal resources, and overall quality of life have declined or not improved since the project and access to the resource has been restricted as a result of marine sanctuaries (although the results are not statistically significant)

Anilao Area Results. For the overall sample, there was a statistically significant increase in perceived levels of 14 of 16 indicators ($p<0.01$). There were large positive increases in participation in resource and fish management, influence over resource management, control over resources, employment, compliance with rules, and knowledge of coastal resource and fish management. There was a large negative change perceived in access to resources and income from coastal resources (Table 6).

Table 6. Perceived pre-project and post-project changes in indicators for all respondents

Indicator	T1	T2	T2-T1	P
Participation in community affairs-general	4.65	5.92	1.27	<0.01
Participation in resource and fish mgt	3.26	6.55	3.29	<0.01
Influence over community affairs-general	2.85	4	1.15	<0.01
Influence over resource mgt	2.63	4.92	2.29	<0.01
Access to resources	9.75	8.13	-1.62	<0.01
Control over resources	3.03	8.26	5.23	<0.01
Fair allocation of access rights	9.71	9.55	-0.16	
Overall quality of life of HH	5.15	6.28	1.13	<0.01
HH income	5.03	6.08	1.05	<0.01

Table 6. cont'd

Indicator	T1	T2	T2-T1	P
Income from coastal resources	4.53	3.46	-1.07	<0.01
Employment	3	5.4	2.14	<0.01
Overall quality of fish resources	6.51	6.36	-0.15	
Compliance with rules	3.76	8.48	4.72	<0.01
Ease of collective decision-making on barangay problems	6.85	7.9	1.05	<0.01
Quickness of resolving community conflicts on resource	6.28	8.08	1.8	<0.01
Knowledge of coastal resource and fish mgt.	3.5	7.96	4.46	<0.01

Table 7 reflects statistically significant changes similar to those found in Table 6. There does appear to be some differences between participants and non-participants in participation in community affairs, overall quality of life of the household, income from coastal resources, and ease of collective decision-making on barangay problems with non-participants having no statistically significant changes for these four indicators.

Table 7. Perceived Pre-project and Post-project Changes in Indicators for Participants and Non-participants

	Participants				Non-Participants			
Indicator	**T1**	**T2**	**T2-T1**	**P**	**T1**	**T2**	**T2-T1**	**P**
Participation in community affairs	4.67	6.35	1.68	<0.01	4.6	5.15	0.55	
Participation in resource and fish mgt	3	7.3	4.3	<0.01	3.8	5.05	1.25	<0.01
Influence over community affairs-general	3	4.45	1.45	<0.01	2.55	3.1	0.55	<0.01
Influence over resource mgt	2.7	5.6	2.9	<0.01	2.5	3.55	1.05	<0.01
Access to resources	9.9	7.93	-1.97	<0.01	9.45	8.55	-0.9	<0.01
Control over resources	2.5	8.1	5.6	<0.01	4.1	8.6	4.5	<0.01
Fair allocation of access rights	9.72	9.52	-0.2		9.7	9.6	-0.1	
Overall quality of life of Household	4.8	6.07	1.27	<0.01	5.85	6.7	0.85	

Household income	5.12	6.05	0.93	<0.01	4.85	6.15	1.3	<0.01
Income from coastal resources	5.27	3.77	-1.5	<0.01	3.05	2.85	-0.2	
Employment	2.67	4.85	2.18	<0.01	3.65	6.5	2.85	<0.01
Overall quality of fish resources	6.42	5.97	-0.45		6.7	7.15	0.45	
Compliance with rules	3.3	8.35	5.05	<0.01	4.7	8.75	4.05	<0.01
Ease of collective decision-making on barangay problems	6.52	7.7	1.18	<0.01	7.5	8.3	0.8	
Quickness of resolving community conflicts on resources	6.12	8	1.88	<0.01	6.6	8.25	1.65	<0.01
Knowledge of coastal resource and fish mgt	2.92	7.9	4.98	<0.01	4.65	8.1	3.45	<0.01

The results of the analysis indicate that the respondents have improved participation in and have influence over coastal resource and fish management. Access to the resource has been limited. The findings above indicate that household income has improved although not necessarily from coastal resources.

Analysis of ICM Sustainability Indicators

While it is interesting to examine each of the indicators, one at a time, it is possible that there are relationships between the indicators which can be used to understand changes in more general factors in the project communities. As a means of discovering these more general factors, principal component analysis with varimax rotation was used to elucidate patterns of relationships between the degree of change in the 16 indicators. The data for both project communities were combined for this analysis. The scree test was used to determine the number of components, resulting in 3 components, which account for a total of 52 percent of the variance in the data set. The results of this analysis are in Table 8. Items loading highest on the first component are clearly related to governance; thus, the component is named "Governance". On the second component items related to income and household wellbeing load highly, resulting in identifying the component as indicating "livelihood." Finally, items loading highest on the third component are related to access to the resource or

access to community affairs; hence, the component is named "Access."

Table 8. Principal component analysis of indicators

INDICATOR	GOVERNANCE	LIVELIHOOD	ACCESS
Knowledge of management	0.759	0.047	-0.160
Compliance with rules	0.711	0.087	-0.094
Influence on management	0.648	0.102	0.526
Control over resources	0.638	0.106	-0.049
Participation in management	0.616	-0.026	0.388
Conflict resolution	0.566	0.080	0.129
Collective decision making	0.557	-0.040	0.230
Household income	0.124	0.924	-0.035
Household well being	0.070	0.866	-0.002
Coastal income	-0.037	0.839	0.109
Employment opportunities	0.363	0.405	-0.220
Quality of fish resource	0.069	0.576	0.149
Influence community affairs	0.406	0.066	0.760
Participate in community	0.262	0.052	0.617
Access to resources	-0.188	-0.072	0.458
Fair allocation of access	-0.138	0.270	0.423
Percent total variance	21.037	18.314	12.278

Component scores representing the position of each respondent on each component were created for each respondent. The component scores are the sum of the component coefficients times the sample standardized variables. These coefficients are proportional to the component loadings. Hence, items with high positive loadings contribute more strongly to a positive component score than those with low or negative loadings. Nevertheless, all items contribute (or subtract) from the score; hence, items with moderately high loadings on more than one component (e.g., influence on community affairs in the analysis presented here) will contribute at a moderate level, although differently, to the component scores associated with the governance and access components. This type of component score provides the best representation of the data. In this paper, for this data we will refer to these scores as Project Impact Indicator Component Scores (PIICS). They are standardized scores with a mean of zero and a standard deviation of one.

The three components clearly reflect the goals of ICM—improvements in governance, livelihood, and empowerment in

terms access to resources and community decision making. Empowerment is also reflected in the governance component (e.g., influence and participation in management, control over resources, and collective decision making). It is important to determine if degree of change in these important indicators is related to project activities or some other variables. As a first step in investigating these relationships, the Project Impact Indicator Component Scores are intercorrelated with a set of independent variables (Table 9). Correlations in Table 9 indicate that respondents with more years of residence in the community and a higher level of project participation, as well as those participating in the CVRP and Haribon projects tend to score higher on the Governance Component. Those from Bais City and older respondents, as well as those with lower levels of formal education tend to score lower on the Livelihood Component. Finally, those from Bais City, those who lived longest in the community and participated in the greatest number of projects as well as participated in the ERMP and CRMP projects tend to have the highest scores on the Access Component.

Table 9. Correlations between independent variables and project impact indicator component scores.

	GOVERNANCE	LIVELIHOOD	ACCESS
Bias City	-0.147	-0.282**	0.382***
Gender female	-0.076	0.140	-0.021
Age	0.114	-0.315***	0.116
Education	0.070	0.235*	-0.106
Years Resid.	0.198*	0.046	0.259**
Household size	-0.003	0.043	-0.036
Total projects	0.381***	-0.034	0.331***
CVRP	0.304**	-0.127	0.136
ERMP	-0.071	0.015	0.349***
CRMP	-0.013	-0.144	0.474***
HARIBON	0.222*	0.139	-0.198*
KKP	0.052	0.095	-0.005
SULU FUND	0.128	0.001	-0.056

N = 120 *** = $p < 0.001$ ** = $p < 0.01$ * = $p < 0.05$

The next question concerns the relative importance of the predictor variables in terms of their individual and combined ability to account for variance in the Project Impact Indicator Component Scores. This can be accomplished with regression analyses, and most efficiently with stepwise regression analysis. In the application used here, all independent variables (the predictor variables in Table 9) manifesting statistically significant zero order correlations with a specific Project Impact Indicator Component Score are intercorrelated with the dependent variable (the specific Project Impact Indicator Component Score). The one with the highest correlation (the one that explains the most variance in the Project Impact Indicator Component Score) is entered first into the multiple regression equation. Then the effects of the entered variable are controlled, and the variable with the highest partial correlation with the Project Impact Indicator Component Score is entered into the equation. The R^2 (squared multiple correlation coefficient, which is equal to the amount of variance explained in the resource beliefs component score) for the two independent variables and the dependent is then calculated. The next step enters the independent variable that has the highest partial correlation with the Project Impact Indicator Component Score controlling for variables already entered. This stepwise procedure is continued until some pre-set criterion is reached. In this case the criterion was that the variable to be entered has a $p < 0.05$. Partial correlations were carefully examined at each step to insure that multi-collinearity did not have an effect on the analysis. The results of these analyses for the three Project Impact Indicator Component Scores can be found in Table 10.

Table 10. Stepwise Regression Analyses

Dependent Variable: Governance Component Score

Independent Variable	Standardized Beta Coeff.	Prob.
Total number of projects	0.32	<0.05
CVRP	0.20	<0.05

R=0.43 R2=0.18 Adj. R2=0.17 F=12.95 p <0.001

Dependent Variable: Livelihood Component Score

Independent Variable	Standardized Beta Coeff.	Prob.
Bias City	-0.20	<0.05
Age	-0.25	<0.05

R=0.37 R2=0.14 Adj. R2=0.12 F=9.22 p <0.001

Dependent Variable: Access Component Score

Independent Variable	Standardized Beta Coeff.	Prob.
Year resident	0.19	<0.05
ERMP	0.18	<0.05
CRMP	0.42	<0.05

R=0.56 R2=0.31 Adj. R2=0.30 F=17.54 p <0.001

The results in Table 10 indicate that total number of projects participated in and participation in the CVRP project together account for 17 percent of the variance in the Governance Component Score ($p<0.001$). Likewise, not coming from Bais City and being of a younger age account for 12 percent of the variance in the Livelihood Component Score ($p<0.001$). Finally, the combined effects of years as resident in the community, and participating in the ERMP and CRMP projects account for almost one-third (30 percent) of the variance in the Access Component Score ($p<0.001$), with participation in CRMP accounting for most of the variance.

Discussion

Year of residency in the community, participation in ICM projects with resource management and enterprise/alternative livelihood activities, and the total number of projects participated in were the strongest predictors of perception of ICM project

sustainability at the two sites in the Philippines. The longer a person lives in the community the more he/she will feel a sense of ownership over the resource and want to sustain the ICM activities. Projects, such as the CVRP, ERMP, and CRMP in the Bais Bay area, which combined resource management activities with alternative livelihood activities that provided economic benefits (improved income), are important for ICM sustainability. For example, marine reserves in Bais Bay established under the CVRP increased fish catch, subsequently raised income, and were sustainable. Another example is seaweed farming in Bais Bay. Started by the CVRP, it has provided income to households and been taken up by non-participants. Participation in project design and implementation provides community members with a sense of 'ownership' over the project. Since the community members helped to create the ICM project, it provides a greater probability that aspects of the project fit the needs of community members.

In summary, participation of community members in the ICM project design and implementation and real or perceived economic benefits from the project influence participants to sustain project activities after project completion. A sense of ownership over the ICM project is important for sustainability, either from years of residency in the community or participation and involvement in the project.

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THE DYNAMICS OF STAKEHOLDER PARTICIPATION IN MARINE PROTECTED AREA DEVELOPMENT: A CASE STUDY IN BATANGAS, PHILIPPINES

Enrique G. Oracion

ABSTRACT

This case study examines the dynamics of stakeholder participation in the establishment, management, and sustainability of the marine sanctuaries in Balayan Bay covering the municipalities of Mabini and Tingloy in Batangas, Philippines. The study interviewed purposive samples of individuals who use Balayan Bay and who are therefore either directly or indirectly involved in or impacted by the establishment of the marine sanctuaries. For comparative analysis, the stakeholders are identified as locals, indirect brokers, direct brokers, and tourists. The result of the study showed that the extent of participation of the locals reflects the limited benefits they have derived from the marine sanctuaries, their perceived loss of control over the management of these marine sanctuaries, and their growing sense of alienation from them as a consequence of the takeover by the tourism sector. This paper argues that the identification of all stakeholders must be an ongoing process to cover all who have interest over the same marine space, including those who may not have been originally involved in the establishment of the marine sanctuaries. The participation of these stakeholders in the management should be encouraged and sustained through the equitable distribution of benefits in various forms. Among other recommendations, this study supports the pursuance of the plan for a common resource management program for the bay being the shared fishing ground and a tourist destination of the two municipalities.

Introduction

Developing a marine protected area is a complex process involving not only the meeting of technical requirements like data on biophysical condition of the area to be designated as restricted for any human activities, but also soliciting community recognition

and support of its objectives at all levels through education (Russ and Alcala, 1999, p. 308). The success of this program depends mainly on its ability to win the support and participation of all users of the coastal and marine resources whose interests are at stake with the closure of a portion of the marine space and the regulation of its use. Finally, to institutionalize its establishment, it must get the government to grant the legal basis for its existence (White, Courtney, and Salamanca, 2002).

Katon, Pomeroy, and Salamanca (1997, p. 22), however, noted that not all stakeholders are equally interested in resource conservation or willing to take active roles in resource management. Therefore, an initial activity essential for the successful establishment of a marine protected area is the identification and description of the stakeholders within as well as outside the community. This will result in a good understanding of their attributes, pre-occupations, interests, and attachment to the marine environment that have to be dealt with effectively in order for them to have significant participation in the marine protected area project.

Identification of Stakeholders

Stakeholders are individuals or groups who are affected by the outcomes, whether negatively or positively, of the marine protected areas. As well, they influence or affect the success or failure of the project and its sustainability. Karl (2000, p. 11) distinguished stakeholders of any resource management project into primary, secondary, and external. Primary stakeholders are directly and grossly affected by the project while the secondary stakeholders are intermediaries in the process of delivering aid or assistance to the primary stakeholders. The external stakeholders, on the other hand, are not directly involved in the project but may either impact or be impacted by the project. This non-inclusive description of stakeholders departs from the traditional notion of the term as referring only to those directly involved used by Katon, Pomeroy and Salamanca (1997, p. 22). To expand the concept of stakeholders, this study includes those not only indigenous to

the community where the marine protected areas are situated but all who are affected and have either negative or positive interests on them.

In recognition of the importance of the marine protected area not only to resource conservation for bio-diversity but also to fishery production and tourism, the distinction of stakeholders done by Miller and Auyong (1998) is considered more appropriate in the analysis of this paper. Their categorization is based on how the stakeholders are attached to the tourism sector as well as to the fishery sector. They include the tourism brokers (further categorized here as direct and indirect), locals, and tourists. In relation to the marine protected area development, the locals and the direct brokers are expected to earn direct economic benefits in the use (legal or not) of the marine space and its resources. Categorically, the indirect brokers and the tourists do not necessarily enjoy personal "economic interests" in marine protected areas unless they play multiple roles and go into the tourism or fishing businesses in the community.

The locals refer particularly to individuals who are solely engaged in fishing and do not directly derive income from the tourism business although they are affected by its consequences, economically, socio-culturally, and environmentally. Distinctively, community residents who spend more time working with the indirect and direct brokers to oversee the activities or serve the needs of the tourists, respectively, are considered as tourism brokers. The direct brokers, on the other hand, are private individuals including the resort and dive tour operators, boat operators, resort workers, and tourist guides. Also called as private sector brokers (Miller and Auyong , 1998, p. 3), they directly earn from the tourism business.

Meanwhile, the indirect brokers are considered as public individuals because of their work in the community. They include the officials of the local government units, non-government organizations, community organizations, and those involved in the actual enforcement of MPA regulations. The indirect brokers are,

therefore, not in the direct business of catering to the needs of the tourists but occupy intermediate social position between the tourism and fishery sectors. In the ideal sense, this allows them to enforce ordinances regulating the use of the marine protected areas in an effective and fair manner that is acceptable to all types of stakeholders. The indirect brokers also correspond to what Miller and Auyong (1998, p. 3) label as public sector brokers.

It should be recognized, however, that some stakeholders carry multiple roles and interests that may not be congruent to their socially identified status and roles. However, these roles are also not permanent and vary over time depending on the opportunities available to them (Oracion, 2001). For example, the report of Russ and Alcala (1999, p. 310) shows how prominent local officials who have interests both in fishing and tourism venture have jeopardized the sustainability of the marine reserve in Sumilon Island and brought the island back to its pre-MPA state. The dominant and popularly recognized social and economic activities that stakeholders in the marine protected areas currently pursue as brokers (direct or indirect), locals, or tourists constitute the basis for their inclusion in this paper.

Importance of Stakeholder Participation for Sustainability

Stakeholder participation has been recognized as a major factor for the sustainability of many development efforts, such as the marine protected areas, until desired results are achieved especially when external expertise and financial support are withdrawn. Moreover, the biological sustainability of a marine protected area is measured by its ability to meet the "needs of the present without compromising the ability of the future generations to meet their own needs" (WCED, 1987, p. 43). Its biological sustainability is also presumed to be positively dependent on the sociological sustainability it has earned, i.e. the long-term participation of stakeholders in its development.

Participation is perceived as a means to move the stakeholders to provide support, cooperate, or collaborate with

an existing project. As an end, it is used to empower them for greater self-reliance and self-management toward sustainable development (Karl, 2000, p. 1). However, participation is considered to be dynamic and changes over time in extent and quality. Therefore, when variations manifest in stakeholder participation within a given period of time, these should to be monitored and understood so that managers can introduce appropriate mitigating activities and policies.

The need to focus on stakeholder participation in any development project is anchored on the argument that if stakeholders invest more in participating but derive less benefit from the process, they cannot be expected to sustain their participation for long. Meanwhile, it is expected that those who benefit more will improve and sustain their participation although as a result they may marginalize the other stakeholders. In effect, when a significant number of stakeholders withdraw support from the project, this could undermine greater sustainability because they would become threats to the project. Hence, Karl (2000, p. 10) stresses the need to assess the costs and benefits of participation on the part of the stakeholders, which could be measured using both quantitative and qualitative indicators.

The foregoing discussion has implications in the establishment and management of a marine protected area. Since the sea is perceived as a common property where everyone has open access (National Research Council, 2001), an uninvolved community can hardly be expected to understand why external organizations or individuals impose restrictions on their rights to these resources (Russ and Alcala, 1999, p. 308). Similarly, a marine protected area could also not survive in a condition when only one sector supports it while another is indifferent to it.

Experts emphasize, therefore, that participation of all who have stakes or interests to protect and satisfy must be solicited and encouraged from the moment a project is conceived to its realization and maintenance. This is only possible through effective education and capability building (White, Courtney, and

Salamanca, 2002). However, this becomes more complicated in cases when new stakeholders, such as the tourism brokers and the tourists, appear and manifest interests over the marine protected area halfway in its development and particularly when it becomes successful (Crawford, Balgos, and Pagdilao, 2000, p. 8; Vogt, 1996, p. 16; Barreveld, 2001, p. 1000). They may either impair or contribute to its management or displace the locals altogether from the management of the marine protected area. To deal with this eventuality, proper mechanisms must be clearly reflected in the management plan.

The Focus and Conduct of the Study

Stakeholder participation relative to the marine protected area, therefore, has to be viewed as a dynamic which follows the phases of the project's development namely, establishment, management, and sustainability. It is assumed that the sustainability of stakeholders' support for the marine protected area is influenced by their participation during its establishment and management as well as by the benefits they experienced as a result of their involvement. However, there may be those who participate only during the management phase and not during the establishment. How the new stakeholders affect the early participants have to be examined relative to how this also determines the future of the marine protected area project.

As used in this study, the establishment phase is that period when decisions and plans are made and implemented, while the management phase covers the maintenance and protection of the marine protected area. Participation in the establishment could be measured by the rating the stakeholders give to their involvement in the decision and planning stage. Participation in management, on the other hand, is indicated by the self-rating of support in the maintenance, compliance, and enforcement of the regulations

of the marine protected area. Meanwhile, the sustainability phase refers to that period when the improved condition of the marine protected area has been achieved and now requires maintenance for a long-term impact. Stakeholder participation at this phase is measured by the continuance of their support of the project particularly when external expertise and financial assistance have been withdrawn.

Through a stakeholder analysis, this study examines the rating the various stakeholders gave their participation during the establishment and in the management of the marine protected areas. Rather than evaluating the success or failure of the marine protected areas, this analysis will examine the reasons behind the improved or limited participation of particular stakeholders relative to the extent of benefits they experienced in the process. In the succeeding discussion the term marine sanctuary or reserve will be used because this is what the case study site calls its marine protected area as contained in an ordinance regulating its management and use.

This case study was done in Mabini and Tingloy, Batangas, Philippines. A total of 160 interviews were conducted or 40 for each (25%) of the categories of stakeholders, using a semi-structured interview schedule. The respondents were initially stratified according to the four categories of stakeholders (i.e. locals, indirect brokers, direct brokers, and tourists) and purposively identified in the field through the snowball technique. Although there are four categories identified for comparative analysis, they are further specified into 11 sub-groups characterized by their current social and economic activities.

The locals are more specifically categorized as fishers from within the community (12.50%) and from outside (12.50%). The indirect brokers include the deputized sea warden or *Bantay dagat* (12.50%), *barangay* officials (5.62%), municipal officials (3.75%), and community workers of non-government

organizations like the Haribon Foundation, *Kabang Kalikasan ng Pilipinas* (KKP) and the Sulu Fund (3.12%). The boatmen (12.50%), resort and dive shop operators (6.25%), and resort workers (6.25%) are considered as the direct brokers. Meanwhile, the tourists are classified as local or domestic (15.63%) and foreign (9.38%).

It should be emphasized that the data discussed in this paper basically came from the perspectives of the different categories of respondents and not by any objective or standard indicators. These include the respondents' perception of the condition of the marine sanctuaries and how they relate to them, their involvement in their establishment, support for their maintenance and protection, the benefits they enjoyed, and sustainability of their support. The respondents were asked. to rate their experiences as well as the behavior of other stakeholders along these issues or variables. The emic ratings of respondents made use of a scale of one (lowest) to five (highest) in addition to their descriptive equivalents. In every rating they made, they were asked also to express their reasons in order to reinforce the analysis. These reasons have important bearing on the improvement of the management of the marine sanctuaries.

The data were analyzed according to the categories of stakeholders. These were then compared across categories in order to see how each differ or reinforce each other in their participation in the development and management of the marine sanctuaries. Differences in percentage distribution and mean scores were used to determine the variability of the responses of the different categories of stakeholders. Chi-square test and the Kruskal-Wallis Analysis of Variance measured the significance of difference of their responses or observations.

The Coastal and Marine Conservation Initiatives

This study covers specifically the *barangays* of Bagalangit and San Teodoro in Mabini (mainland town) and Santo Tomas in

Tingloy (island town), in Batangas (*see map in* Christie, et. al., *this issue*). All these communities have direct access to Balayan Bay for fishing and tourism. Fishers from both communities claimed to fish in each other's territorial waters. This sometimes results in tension when a group is accused of illegal fishing or intruding inside the marine sanctuaries. Similarly, tourist divers who stay in the resorts at Mabini also dive in the waters of Tingloy. Earthwatch (2001) considered the reefs in Balayan Bay as abundant in marine life, supplying tons of fish to local fishers and attracting thousands of scuba divers and snorkelers for their biodiversity and beauty. Because of these, resorts and dive shops occupy most of the available spaces of the coast facing Balayan Bay, particularly the part of Mabini that started dive tourism in the 1970s.

Several non-government organizations interested in marine environmental protection and conservation have been working in Mabini and Tingloy for more than a decade now. Foremost of these is the Haribon Foundation which helped in the establishment of the marine sanctuaries particularly in Bagalangit and San Teodoro. The Coastal Resource Management Program of the US Aid for International Development (CRMP-USAID) and the World Widelife Fund-*Kabang Kalikasan ng Pilipinas* (WWF-KKP) also expanded their projects in Mabini. The CRMP helps monitor the status of the marine sanctuaries and the surrounding areas necessary for the formulation of mitigating policies and actions for their management. The KKP is particularly known for its support for the enforcement of the marine sanctuary ordinance through the *Bantay dagat*. It is also currently developing mechanisms with the local government for the collection of user's fee for the marine sanctuaries, particularly from dive tourism (Christie, 2002, p. 3). Meanwhile, the Sulu Fund for Marine Conservation Foundation, Inc. (SFMCFI) works specifically in Santo Tomas and pursues a marine conservation program through the establishment of a marine sanctuary as one project component (Ocampo, n.d).

Section 1 of the amended Marine Sanctuary Ordinance

(1993) of Mabini declared the entire shoreline and reef of 700 meters offshore of the *barangays* of Bagalangit and San Teodoro as within the municipal marine reserve. Within the marine reserve area are the three fish or marine sanctuaries of Cathedral Rock, Arthur's Rock and Twin Rocks (Sec 2). Reports said that the first two marine sanctuaries were established principally through the initiative and involvement of the resort operators adjacent to them who are likewise in the forefront of their management. Meanwhile, the Twin Rocks Marine Sanctuary was established with community participation; however, the resort operators have allegedly taken over its management at present (Christie, 2002; Pomeroy, Oracion, Caballes, and Pollnac, this issue).

Originally declared a fish sanctuary in Mabini in the first ordinance of 1991, the White Sand is now part of the whole marine reserve area where traditional fishing is allowed (Sec. 3). This includes the use of hook and line, spear fishing without compressor and scuba, use of nets, *salok* for catching *dulong*, and use of traps (Sec. 5). Meanwhile, Section 4 of the ordinance considers it "*unlawful to catch fish* or to gather corals within the sanctuary" (*emphasis mine*). The amendment, however, says that "gathering of seashells at a maximum of knee depth level of water is allowed inside the sanctuary from the month of May, June, July, August, September, and October only". A sentence in Section 3 also reads that "*scuba diving/ snorkeling is absolutely prohibited* inside the sanctuary" (*emphasis mine*).

The Establishment of the Marine Sanctuaries

The marine sanctuaries of Mabini were established about 10 years ago (planning and deliberation started in 1991). Those originally involved are no longer connected with the local government units or environmental organizations working in the

community. New ones have replaced the pioneering non-government workers who worked with the community. Among local residents, those who used to work in the tourism business before now work elsewhere. These partly explain why a greater proportion of the stakeholders interviewed was not involved during the establishment of the marine sanctuaries.

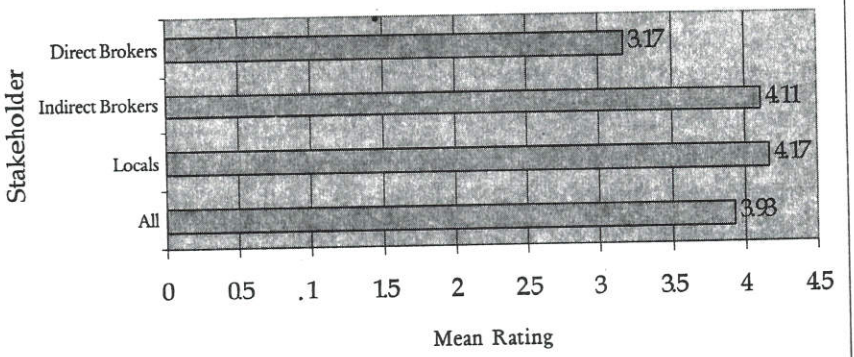
Only about 17 percent of all the stakeholders interviewed were involved in the decision making and planning during the establishment of the marine sanctuaries. The data show that 30 percent of the locals were involved compared to the indirect brokers (22.50%) and the direct brokers (15.00%). Meanwhile, none of the interviewed tourists were involved. The proportion of stakeholders who were involved differs significantly across categories.[1] This information will help ascertain if the variation in the participation of different stakeholders has also shifted or changed overtime relative to their support of the management and use of the marine sanctuaries at present.

Rating of involvement. Since only a few of the stakeholders interviewed have been involved in the decision-making and planning for the establishment of the marine sanctuaries, what is more important to pursue at this point is the rating of their involvement.

On the average, the self-rating of all stakeholders who were involved in making the decisions and plans for the establishment of the marine sanctuaries is 3.93. Although there is a slight variation in the rating of the locals and the indirect brokers (4.17 vs. 4.11), they still fall under the same descriptive rating of being *more involved*. Meanwhile, the average self-rating of the direct brokers is 3.17 or only *moderately involved* compared to the locals and the indirect brokers. However, two of the resort operators who have been in the community earlier than the rest and have taken some initiatives of establishing the marine sanctuaries like Cathedral

Rock and Arthur's Rock gave ratings above the mean.

Fig. 1. Mean Rating of Involvement



Rating Scale: 1.00- 1.79= least involved, 1.80- 2.59= less involved, 2.60- 3.39 = moderately involved, 3.40- 4.19= more ***involved, 4.20- 5.00= most involved***

Although it was shown earlier that the proportion across stakeholders involved in the establishment significantly differs, their involvement rating does not differ significantly.[2] Nonetheless, Fig. 1 shows that the involvement rating of the direct brokers is lower compared to the locals and the indirect brokers who shared almost equal ratings. The resort operators represented mostly the direct brokers who were involved compared to the other stakeholders in the same category.

Reasons for involvement. Those who were involved explained that they were active from the start particularly in the preparation, dissemination of information to the community, the actual planning itself, and the establishment of the marine sanctuaries. Specific responses from the non-government workers indicate that they were particularly responsible for the conduct of public hearings and in coordinating with the local government officials and community leaders for. The local officials and leaders who welcomed these non-government organizations confirmed

what the non-government workers have said. In fact, they helped them in the preparatory training for the establishment of the marine sanctuaries. Together with non-government workers, specifically from the Haribon Foundation and some academic research institutions, a number of stakeholders across categories also participated in the coral survey used in making the plan.

On the other hand, the direct brokers, in particular the resort operators, claimed that they were responsible for the establishment of the marine sanctuaries close to their respective resorts. A local reported that it was part of his duty as an official of the community association to cooperate in the establishment of a marine sanctuary (i.e. Twin Rocks). Three local government officials, including the non-government workers who participated in the deliberation of the ordinance that legalized the establishment of the marine sanctuaries, also gave the same reason. There were also those who said that they were involved because they recognized the importance of the marine sanctuaries amidst the deteriorating fishery and marine resources in the community. Absence from the community for sometime also explains the limited involvement of some fishers.

Table 1. Reasons of Stakeholders for their Involvement

Reasons for Involvement Ratings	Locals (%)	Indirect Brokers (%)	Direct Brokers (%)	Total (%)
Actively involved from start	7 (58.34)	4 (44.45)	6 (100.00)	17 (62.96)
Obligation as part of official functions	1 (8.33)	3 (33.33)		4 (14.82)
To improve fishery and marine resources	1(8.33)	1 (11.11)		2 (7.41)
Absence from the community for sometime	2 (16.67)			2 (7.41)
Occasionally involved	1 (8.33)			1 (3.70)
No response		1 (11.11)		1 (3.70)
Total	12 (100.00)	9 (100.00)	6 (100.00)	27 (100.00)

Reasons for non-involvement. Majority of the stakeholders pointed to their lack of attachment to the community (50.38%) as the reason for their non-involvement in the decision making and planning for the establishment of the marine sanctuaries. Of the stakeholders who gave this reason, (83.87%) were indirect brokers, (47.06%) were direct brokers followed by the tourists, particularly the foreigners (45.00%), and the locals (25.00%). The specific circumstances behind this reason differ across categories of stakeholders. The fishers from outside the community said that they were not part of the process of the marine sanctuary projects by virtue of their being non-residents. This is also consonant with the reason cited by the government officials from outside the community who claimed to have no jurisdiction over the matter. Moreover, there were indirect brokers who said they were not yet local government officials, B*antay dagat*, or community workers at the time of the establishment of the marine sanctuaries. Resort operators and boatmen who were not yet in the tourism business during that period gave the same reason. All of them had no direct interest to be involved.

The second reason given is lack of knowledge of the establishment or existence of the marine sanctuaries at that time (18.80%) and cited by a good number of the tourists (37.50%). Meanwhile, tourists who had knowledge of the existence of marine sanctuaries explained that as these were already in existence when they started diving in the community, they were not involved in their establishment. However, one tourist who had been in the community earlier lamented that he was not informed about this matter. Some of the direct brokers, particularly the boatmen and the resort workers, also cited this reason.

The absence of interest and pre-occupation with other important activities is third of all the cited reasons (11.28%). Tourists, primarily foreigners, said that they were interest only in diving and not in any other kind of involvement. Direct brokers like the boatmen or dive guides were simply

interested in their work of bringing the tourists to the dive sites. The same is true among some fishers from the community whose interest was more focused on making a living.

Being young at the time the decision and plan were made is the fourth reason for non-involvement (8.27%) and cited by some locals as well as by direct and indirect brokers. Meanwhile, the fifth reason cited only by the outside fishers states that they were not members of the community association. A number of resort workers and boatmen alleged that only the workers of a non-government organization, the local officials, the resort operators, and the members of the community association were involved in making the decision and the plan. One indirect broker further commented that only one prominent national government official made the decision with regards to the establishment of one of the marine sanctuaries in the community (i.e. Cathedral Rock). He said that the later handing over of management of the sanctuaries to one resort nearest to it was not a community decision.

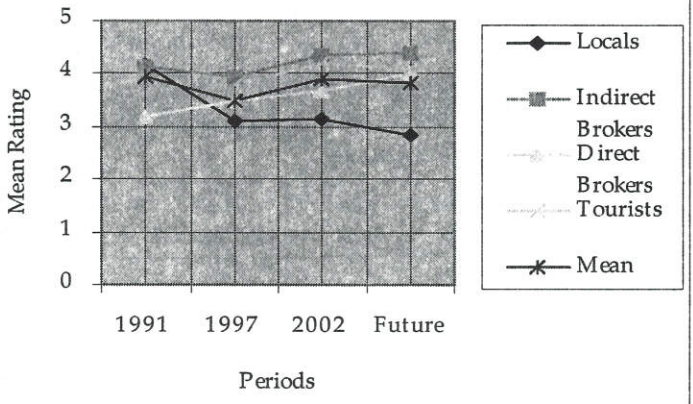
Table 2. Reasons of Stakeholders for their Non-involvement

Reasons for Non- involvement	Locals (%)	Indirect Brokers (%)	Direct Brokers (%)	Tourists (%)	Total (%)
Unattached with the community	7 (25.00)	26 (83.87)	16 (47.06)	18 (45.00)	67 (50.38)
No knowledge about them	3 (10.71)	1 (3.22)	6 (17.65)	15 (37.50)	25 (18.80)
Not interested and pre-occupied	5 (17.86)		3 (8.82)	7 (17.50)	15 (11.28)
Still young during that time	6 (21.43)	2 (6.45)	3 (8.82)		11 (8.27)
Not a member of the association	7 (25.00)				7 (5.26)
The plan was exclusively made		1 (3.23)	6 (17.65)		7 (5.26)
No response		1 (3.23)			1 (0.75)
Total	28 (100.00)	31 (100.00)	34	40	133 (100.00)

Synthesis and Discussion

It could be noticed that the participation of the locals declines dramatically when the ratings of stakeholder participation across categories are compared (Fig. 3) during the different phases of a marine protected area development from establishment, management to sustainability. This observation is alarming because the locals had originally demonstrated a significant amount of involvement in the project together with the indirect brokers. Even the sustainability of their support in the future is now doubtful having recorded the lowest mean rating compared to the other stakeholders.

Fig.3. Mean Ratings of Stakeholder Participation During Different Periods of the Marine Sanctuary Development



Comparatively speaking, the participation of the locals in the marine protected area development in the case study site is in contrast to the direct brokers and the tourists. The direct brokers demonstrated an improving trend in their participation as well as in its sustainability. They also rated high in terms of the benefits they experienced compared to the locals. Meanwhile, the tourists who had no participation in the establishment of the marine sanctuaries rated

themselves high in their support for their management. They are also perceived to have derived the highest benefits from the improved condition of the marine sanctuaries.

Although the tourists' rating for the sustainability of their support is lower than their rating for the management at present, this is expected because they are non-residents in the case study site. They are expected to stop coming anytime or return in the future depending on their desire and perhaps on the condition of the dive sites in the community, including the marine sanctuaries and such factors as the peace and order condition of the country in the case of the foreign tourists.

It should be recognized, however, that the benefits enjoyed by the different stakeholders are not comparatively the same because they inherently have different levels of utility and units of value. The tourists enjoyed the aesthetic and recreational values of the marine sanctuaries while the direct brokers and the locals have derived relative economic benefits. As the tourists seek more aesthetic and recreational satisfactions from the marine sanctuaries, more economic benefits accrue to the direct brokers but not for the locals. This may be the case when the locals are prohibited to fish near or within the protected areas. It is alleged that their extractive use of the marine resources threatens their beauty and bio-diversity causing a negative impact on the tourism business.

Meanwhile, the local government units represented by the indirect brokers have rating of benefits intermediate between the stakeholders of the fishery and tourism sectors. It is higher than the rating of benefits of the locals but lower than the rating given by the direct brokers and the tourists. They are also perceived to demonstrate moderate shift in their participation in the marine sanctuary project because of the instability of their tenure. This is particularly true among political leaders who have the tendency to undo the efforts of political rivals (Christie 2002: 5). Nonetheless, the participation ratings of indirect brokers are shown to be constantly above the mean ratings of all stakeholders.

Among all other possible explanations, it is believed that the limited benefits enjoyed by the locals, their growing sense of alienation from the marine sanctuaries, and their loss of control of the management of these sanctuaries have only added to their frustration and made them unwilling to actively participate in keeping the marine sanctuaries in excellent condition. If a good number of fishers continue to harbor this sentiment, they would become potential threats to the sustainability of the marine sanctuaries. The improved condition of the marine sanctuaries at present may be jeopardized when fishers no longer recognize and violate the "no-fishing inside the marine sanctuary" provision of the ordinance.

There is, therefore, a good reason to believe that the ineffective enforcement of marine sanctuary ordinance is one source of tension between the fishery and tourism sectors. For instance, although the ordinance specifically prohibits fishing a well as scuba diving and snorkeling inside the marine sanctuaries, this prohibition is not strictly enforced on diving activities, which are in fact tolerated. On the other hand, fishing is strongly prohibited especially by the resort operators. The selective enforcement of the marine sanctuary ordinance further contributes to the perception that those in the tourism sector enjoy more control and access over the marine sanctuaries (*also* Christie, 2002, p. 15).

Summary and Conclusion

This case study demonstrates the complex process of identifying all the stakeholders of a marine protected area development. They do not include only those who are directly involved, such as the officials and members of the local government units, non-government organizations, community associations, the resort operators, and resident fishers. They also include the tourists, outside fishers, the tourist brokers, and all who use Balayan Bay where the marine sanctuaries are located. These latter interest groups are also important elements to consider for the success or failure marine sanctuaries development.

Majority of the fishers and indirect brokers coming from another community included in this study may not be strictly considered as stakeholders because they either refused to be involved or their participation was not solicited in the marine protected area project. However, their participation is necessary because of the fact that Balayan Bay where the marine sanctuaries are located is their common fishing ground. Therefore, the outside community also becomes recipient of whatever results, favorable or otherwise, the marine sanctuaries create in the long run.

On the positive side, the outside community can contribute significantly to the maintenance and protection of marine sanctuaries if their participation is solicited and when they are made aware of the spillover effects of marine sanctuaries and the potential benefits they stand to gain when fishing in the adjacent waters of the protected areas. It has been widely observed that outside fishers who have taken no part in the establishment and protection of marine sanctuaries and are left out in the periphery, or who have been actively cut off from a potentially rich fishing ground are often the violators of the marine sanctuary ordinance. They may not have participated in the establishment of the marine sanctuaries but they could be encouraged to support in the management at present. The same is true to the indirect brokers of another local government unit.

Meanwhile, the study shows that majority of the stakeholders claimed that they were not involved in the decision making and planning during the establishment of the marine sanctuaries. But among those involved, the locals, particularly the fishers from within the community, claimed the greatest involvement because they are residents who make a living here. Nevertheless, it has become evident that a few years after the establishment of the marine sanctuaries, the relationships of the different categories of stakeholders to the marine sanctuaries have either shifted or changed. Although there was an improvement in the number of those who supported the management compared to the number of those who were originally involved in the establishment, the

proportion of the direct brokers who supported the management was more than one-third of the locals. In fact, only less than half of the locals were supportive of the present management and these mostly include fishers from within the community.

Only an insignificant number of outside fishers said that they supported the management of the marine sanctuaries at present although they fish close to these areas. This is in contrast to the significant increase in the proportion and the extent of the support of the indirect and direct brokers as well as the tourists although a majority of them were not originally involved in their establishment. This shows that the enthusiasm of all types of fishers to support the maintenance and protection of the marine sanctuaries has not improved after their establishment because the equitable distribution of benefits has not been realized.

The sustainability of the support of the locals for the marine sanctuaries in the future is also perceived to be only moderate compared to the rest of the stakeholders. This observation supports the findings of Pollnac, et. al. (this issue) on the factors influencing the sustainability of integrated coastal management projects in the Philippines. These findings noted the positive impact of tourism but underscored the negative impact of the involvement of tourist business interest on the participation of the locals, which consequently declined resulting from conflict of interest.

Recommendations

This study recommends first and foremost the forging of the agreement between the two local government units in the management and use of Balayan Bay. The past proposal for the creation of the Mabini and Tingloy Coastal Area Development Council (MaTingCADC) or the Coastal Resource Management Trust Fund Board and the adoption of a common resource management program for Balayan Bay that is representative of all types of stakeholders needs urgent attention. Because of its political implications, this proposal must be initiated by the two local government units. If realized, all marine sanctuaries in Balayan

Bay and those to be established in the future can form a network (e.g. Christie, White, and Deguit, 2002) within a broader bay development plan for more impact. When this materializes, financial and technical resources can be pooled and management efforts become well coordinated, eventually ensuring equitable and sustainable use by all stakeholders.

Another recommendation is the immediate amendment of the 1993 Marine Sanctuary Ordinance of Mabini. Unless the gray area in the marine sanctuary ordinance is corrected and its enforcement implemented, made transparent, and acceptable to all stakeholders (i.e. marine sanctuaries are open to dive tourism but regulated and for a fee), the fishers will insist on believing that they are being discriminated against, particularly when they see that outsiders who do not share the burden of developing and maintaining the sanctuaries end up deriving more benefits. The reaction of the locals is understandable coming from people whose high expectations in the beginning only ended in disappointments. The same observation is apparent in the study of Christie, White, and Deguit (2002) in the marine protected areas of the islands of Balicasag and Pamilacan in Bohol. The same loopholes must also be addressed in the proposed Marine Sanctuary Ordinance of Tingloy.

Finally, it is also recommended that the income derived from dive tourism in terms of taxes and fees for use of the marine sanctuaries (White and Cruz-Trinidad, 2000; White, Ross, and Flores, 2000) be converted into social benefits. The locals who do not seek tourism-related employment must be able to feel these in terms of services and infrastructures or development projects in the community. This will compensate for their loss of access to the currently protected areas which used to be their traditional fishing grounds. The more the locals benefit from dive tourism, directly or indirectly, the more likely they will support the efforts to keep the marine sanctuaries in excellent condition. A part of the money from this income must also be set aside as environmental funds to sustain the management of the marine sanctuaries at

Balayan Bay, perhaps to be managed by the CRM Trust Fund Board.

Acknowledgments

This paper contains data from my research report entitled, "On Brokers, Locals, Tourists, and Marine Sanctuaries: A Stakeholder Analysis of Fishery and Tourism Uses of the Same Marine Space" (2002). The study was part of the Integrated Coastal Management Sustainability Research Project (ICMSRP) of Silliman University, Philippines and the University of Washington, Seattle, USA funded by David and Lucile Packard Foundation. At this point, I would like to acknowledge Patrick Christie and Roy Olsen de Leon, principal and co-principal investigators of ICMSRP, respectively, for their support of this project and for their confidence in my ability to undertake this study. I am also thankful to Patrick Christie, Marc Miller, Sofia Bettencourt, and Albert Salamanca for their comments on the earlier draft of this paper.

The expertise and dedication of my research assistants, Demberge Caballes, Esperanza Tabara, Wednesday Gaudan, and John Louie Lubaton in field and office work are highly appreciated. The same appreciation goes to the locals, brokers, and tourists in Mabini and Tingloy, Batangas who willingly shared their time for the interviews.

Notes

[1] Chi-square = 11.03, df = 2, table value = 9.210, $p<0.01$.

[2] Kruskal-Wallis ANOVA= 2.77, df = 2, table value = 9.210, $p> 0.01$ level.

[3] The tourists who supported five years ago include 5 domestic and 4 foreigners out of the 40 interviewed.

[4] Chi-square = 23.68, df = 3, table value = 11.345, $p< 0.01$.

[5] The tourists who supported at present include 16 domestic and 9 foreigners out of the 40 interviewed.

[6] Cells are collapsed to 3 columns because there are cells that have frequencies of less than 5. Chi-square =

26.47, df= 2, table value = 9.210, p< 0.01.

[7] Kruskal-Wallis ANOVA = 3.58, df = 3, table value = 11.345, p> 0.01.

[8] Kruskal-Wallis ANOVA= 16.293, df = 3, table value =11.345, p< 0.01.

[9] Kruskal-Wallis ANOVA = 2.39, df = 3, table value = 11.345, p> 0.01.

[10] The tourists who reported enjoying some benefits include 17 domestic and 7 foreigners out of the 40 interviewed.

[11] Cells are collapsed to 3 columns because there are cells that have frequencies of less than 5. Chi-square = 18.30, df = 2, table = 9.210, p< 0.01.

[12] Thirteen are outside fishers while 3 are from the community. The omparative rating of benefits also in Table 12 shows that the outside fishers received the least benefits.

[13] Kruskal-Wallis ANOVA = 10.63, df = 3, table value = 7.815, p< 0.05.

[14] Kruskal-Wallis ANOVA = 22.132, table value = 11.345, p< 0.01.

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LEGAL ISSUES AFFECTING SUSTAINABILITY OF INTEGRATED COASTAL MANAGEMENT

Rose-Liza V. Eisma, Marc Hershman and Patrick Christie

ABSTRACT

Most integrated coastal management projects that are implemented in developing countries have generally failed to continue after donor support is withdrawn. The Integrated Coastal Management Sustainability Research Project proposes to study, in a multidisciplinary manner, the sustainability of integrated coastal management activities in the Philippines and Indonesia after formal project termination. Legal research is one of the components of this research project. The research aims to: (a) identify the policy, legal, and institutional framework that provides support for the implementation of integrated coastal management, and (b) show the importance of a legal framework and its effective enforcement in sustaining integrated coastal management even after support is gone.

This paper will argue that a legal framework and its effective enforcement foster the sustainability of integrated coastal management. Laws, regulations, ordinances, and other legal instruments buttress the sustained implementation of integrated coastal management programs, if they are applied or enforced. In the Philippines, although there are numerous laws that provide policy and regulatory framework for integrated coastal management, these laws are not enforced properly for a variety of reasons. To find out the issues affecting enforcement, field research was conducted in two sites in the Philippines: Mabini, Batangas and Bais Bay, Negros Oriental. Specific interviews with key informants in these sites were conducted. Preliminary results of the qualitative analysis show that because of conflicting policies, confusion of roles, political interference, lack of interest to fully prosecute cases, selective enforcement, and informal enforcement mechanisms, enforcement in the two above-mentioned sites was weak. Due to the ineffective law enforcement as well as inadequate legal regime, integrated coastal management activities floundered after donor support was withdrawn.

LIST OF ACRONYMS

BFAR	***Bureau of Fisheries and Aquatic Resources***
CEP	***Coastal Environment Program***
CFARMC	***City Fisheries and Aquatic Resource Management Council***
CMMO	***Coastal and Marine Management Office***
CRM	***Coastal Resources Management***
CRMP	***Coastal Resources Management Project***
CSC	***Certificate of Stewardship Contract***
CVRP	***Central Visayas Regional Project***
DA	***Department of Agriculture***
DAO	***Department Administrative Order***
DENR	***Department of Environment and Natural Resources***
DILG-LGS	***Department of Interior and Local Government-Local Government Sector***
DOJ	***Department of Justice***
DOST	***Department of Science and Technology***
DOTC	***Department of Transportation and Communications***
DOT	***Department of Tourism***
EISS	***Environmental Impact Statement System***
ENRO	***Environment and Natural Resource Office***
EO	***Executive Order***
FAO	***Fisheries Administrative Order***
FARMC	***Fisheries and Aquatic Resource Management Council***
FLC	***Foreshore Lease Contract***
FSP	***Fisheries Sector Program***
ICM	***Integrated Coastal Management***
ISF	***Integrated Social Forestry***
LGC	***Local Government Code***
LGCAMP	***Lingayen Gulf Coastal Area Management Program***

LGU	***Local Government Unit***
MARINA	***Maritime Industry Authority***
MFARMC	***Municipal Fisheries and Aquatic Resource Management Council***
MPA	***Marine Protected Area***
NGO	***Non-government Organization***
NIPAS	***National Integrated Protected Areas System***
PAWB	***Protected Area and Wildlife Bureau***
PD	***Presidential Decree***
PCAMRD	***Philippine Council for Aquatic and Marine Research Development***
PCG	***Philippine Coast Guard***
PFC	***Philippine Fisheries Code***
PNP	***Philippine National Police***
PNP-MARIG	***Philippine National Police-Maritime Group***
PTA	***Philippine Tourism Authority***
RA	***Republic Act***

Introduction

A complex web of interrelated laws comes into play when one steps into the coastal zone in the Philippines. This observable fact becomes inevitable where government enacts laws in order to pursue a broad range of environmental policy objectives. Accordingly, there are laws that address environmental protection in general and statutes that are aimed at, *inter alia*, fisheries management, forestry protection, environmental risk assessment, protected area management, pollution control, and biodiversity protection, in particular.

Within the foregoing legal setting, a number of integrated coastal management initiatives have been implemented in the Philippines. These projects and/or programs, implemented by either government or non-government entities, have varied successes and failures. However, some of these processes have

been discontinued and, in some cases, failed to meet their goals after formal project termination and funding has been used up. Examples of such projects include the Central Visayas Regional Project (CVRP), the Fisheries Sector Program (FSP), the Apo Island Showcase, the Batangas Bay Coastal Management Project, the Coastal Resources Management Project, and the Lingayen Gulf Coastal Area Management Program. It has been suggested that CVRP had a very limited success for it missed meeting most of the goals set.[1] On the other hand, the FSP is generally regarded as a success in reshaping Philippine policy thrusts on fisheries.[2] And while some projects ceased upon the drying up of funds, some CRM initiatives managed to sustain themselves. The Apo Island experience in Negros Oriental proves the latter point.[3]

Methodology

Objectives. This paper will identify the policy, legal and jurisdictional framework that provides authority for ICM in the Philippines. The elements of ICM will be examined with respect to the existing laws and regulations in order to provide a closer understanding of how it works in the given national situation. To do this, the legal research gathered and reviewed all legislation relevant to coastal management. Local legislation was also collected from the two case study sites–Bais Bay, Negros Oriental and Mabini, Batangas. Finally, secondary authority[4], such as commentaries from eminent authorities and case reporters[5] that contain the decisions of the courts, were gathered.

Likewise, this paper will also address the main question of whether laws, regulations, ordinances, and other legal instruments buttress the sustained implementation of ICM if they are applied and enforced. Studies have shown that legal compliance is a key to the success of ICM interventions, particularly marine protected area establishment.[6] The actual enforcement of laws will therefore be used as a tangible measure of ICM sustainability. Local court dockets showing the number and status of cases that were filed, prosecuted, and decided on were used to enrich the data sets.

The second research activity gathered information about legal enforcement issues during and after donor ICM projects in the two study sites mentioned. This part of the research is based on detailed, open-ended interviews with a number of key actors such as *Bantay dagat*[7] in both sites, members of the resource management council, local government officials, resort owners, provincial environment officers, and legislative members. A total of 40 interviews were conducted in the two case study sites. A qualitative analysis of these interviews was performed using the *Atlas.ti* software. The research analyzed the inputs from various stakeholders on the various legal and institutional issues on ICM; concrete results on ICM implementation and compliance vis-à-vis law and policies; the ICM enforcement processes; motives of ICM implementers and enforcers; and the nature and purpose of the relevant ICM statute or regulation.

Focus of the Legal Research. This research work was not designed to provide all-encompassing answers to legal queries on Philippine experience in ICM. Admittedly, this legal research was constrained to rely on court dockets and local legislative logbooks or ordinance master lists for documentary data on violations and infractions of ICM-related laws and ordinances in select ICM sites. It did not have the time or resources to trace the parties-litigants in the various cases and obtain from them information related to their cases. Moreover, this work limited itself to examining two case studies, considering that more than 2 dozens potential ICM projects were earlier identified.

Nevertheless, to have a relatively comprehensive treatment of the subject (i.e., legal implications in sustaining or weakening ICM in the Philippines), this legal research limited its analysis to certain issues: (a) identifying overlaps and gaps in ICM legislation which give rise to conflict or confusion; (b) conflicting mandates and authority of said laws, which may negate any gains made by any agency or group tasked to implement the laws; and (c) vertical and horizontal integration in relation to enforcement and

implementation of ICM-related laws. In the two case studies (Bais Bay and Mabini, Batangas) mentioned, site-specific issues of (1) mangrove management and (2) marine protected area management, are examined using the foregoing foci. A comprehensive legal study which includes other aspects such as land use management water quality management, pollution management will not be undertaken at this time to keep the scope of the study manageable. At any rate, the two core issues will address resource use, degradation, and conflict which are important dimensions of ICM problems.

Case studies. Past ICM activities in selected sites in the Philippines were chosen as case studies. Legal research took place in Central Visayas (Bais Bay in Negros Oriental Province) and Central Luzon (Mabini in Batangas Province) of the Philippines. Bais Bay demonstrates the difficulties local governments faced in assuming total responsibility over ICM implementation after outside donor support was withdrawn while Mabini (commonly known as Anilao) illustrates how initiatives by non-government organizations floundered after formal project termination. These two case studies are identified not because they are assumed to be ICM failures (emphasis added). To the contrary, these studies significantly elucidate the interplay of factors in the formulation, implementation, and monitoring of ICM. It is assumed that by focusing on these two sites (out of more than a dozen or so), critical insights can be drawn regarding the legal and institutional factors or elements that promote or inhibit ICM sustainability after termination of funding resources in ICM projects.

Research Results

Legal Framework for ICM. A legal framework for ICM is a basic structure for the integrated management of coastal resources deriving authority from or founded on law and established rules. This legal scaffolding is primarily supported by the Constitution which is the supreme law from which all other laws,

such as statutes, executive, and administrative orders, court decisions, and local ordinances, emanate. The basic framework of the Philippines' legal authority for ICM is elaborated in the following matrix.

Table 1. Basic Legal Framework for ICM

Law	Relevant ICM Provisions	Function
1987 Constitution	Article II, Sections 15 and 16 (Promotes right to a healthy environment), Article XII, Section 2, par. 1 (All natural resources owned by the State), Article XII, Section 2, par. 2 (Duty of State to protect marine wealth), Article XII, Section 2, par. 3 (Priority to subsistence fishermen), Article II, Sections 22 and 23 (Rights of non-government organizations to assist State)	Empowers Congress, within prescribed limits, to enact legislation and formulate governmental policy
Congressional Acts (i.e., Republic Acts or RAs)	Philippine Environment Policy (PD 1151) Philippine Environment Code (PD 1152) Local Government Code (RA 7160) Agricultural Fisheries Modernization Act (RA 8435) Fisheries Code (RA 8550) Solid Waste Management Act (RA 9003) Forestry Code (PD 705, amended by RA 7161) National Integrated Protected Areas System Act (RA 7586) Environmental Impact Statement System Act (PD1586)	Policies for environmental protection, resource management, pollution control, and habitat protection
International Treaties	Rio Declaration, Convention on Climate Change, Convention on Biodiversity, Chapter 17 of Agenda 21	A treaty is given force and effect as any statute that is legislated by Congres

Table 1. Cont'd

Administrative Orders (AO)	Department AO 96-37 (EIA), DAO 92-30 (devolution), DAO 93-19 (Coastal Environment Program), DAO 90-15 (mangrove management), Fisheries AO 193 (taking whale sharks and manta rays), FAO 198 (commercial fishing), FAO 201 (active gear fishing), FAO 202 (coral exploitation), FAO 203 (muro-ami), FAO 204 (use of superlights)	Agency rule-making subject to limitations laid down by the Constitution and laws
Executive Orders	Executive Order No. 192: Creation of the Department of Environmental and Natural Resources (DENR) to protect the environmental integrity of Philippine waters. EO 15 and EO 370: Creation of Philippine Council for Sustainable Development (PCSD).	Formally written and passed into law in the exercise by the President of its executive functions
Court Decisions	Some landmark jurisprudence includes the cases of Oposa vs. Factoran, Tañio vs. Socrates (G. R. No. 110249, 1997), Laguna Lake Development Authority vs. Court of Appeals (251 S.C.R.A. 42, 1995), and Technology Developers Inc., vs. Court of Appeals (G. R. No. 94759, 1991).	Constitutional authority of courts is to interpret laws and ultimately establish what the law allows or prohibit
Ordinances	RA 7160 (Local Government Code of 1991) and RA 8550 (Fisheries Code of 1998)	Local government units to enact ordinances to protect the environment and enjoin illegal and destructive fishing practices within municipal water

Numerous laws and regulations have been established for coastal and marine resources, activities, coastal users, and environments in the Philippines. In fact, over 50 pieces of legislation, which affect coastal resources, were noted in 1997.[8] The list grows as more laws, rules, and regulations have been enacted on fishery, forestry, tourism, mining, land use, reclamation, energy, shipping, and all other decrees that have bearing on coastal zone development and conservation and are vital to marine resources protection.

From these laws, a legal basis for government institutions to manage coastal and marine resources has emerged. Tolentino[9] considers three landmark statutes in the Philippines in the field of environmental protection: Philippine Environmental Policy (Presidential Decree or PD 1151),[10] Philippine Environment Code (PD 1152),[11] and Environmental Impact Statement System (PD 1586),[12] as the legislative base for coastal zone management. PD 1151 sets forth the environmental protection policies for the country, recognizes the right of the people to a healthy environment, and renders compulsory the submission of environmental impact statements for environmentally-critical projects, or projects located in environmentally-critical areas.[13] PD 1152, on the other hand, outlines the guidelines for the formulation of national standards for air and water quality, land use management, fisheries management, and wildlife protection, among others. It deals with all aspects of the Philippine environment in its totality and not on a fragmented basis.[14]

On the other hand, La Viña[15] claims that the Philippine government has always relied principally on regulatory mechanisms to manage the marine and coastal zones, particularly to control activities, allocate resources among users and potential users, and resolve conflicts among competing values. These regulatory mechanisms can be classified into two broad categories: (a) those used to regulate access to and use of public resources such as fisheries, mineral deposits, forestry, flora and fauna, and public land; and (b) those used for environmental protection such as the Environmental Impact Statement System, National Integrated

Protected Areas System (NIPAS), and pollution control.[16]

Finally, the Department of Environment and Natural Resources, et al.[17] have established a legal and policy framework for coastal management which is largely comprised of management systems provided in several major laws, namely the Local Government Code,[18] the Philippine Fisheries Code,[19] the NIPAS Act,[20] and the Agricultural Fisheries Modernization Act.[21]

In the inventory and analysis of ICM-related laws, it is apparent that a coastal policy has yet to be formulated and formalized in a national legislation. The multiplicity of laws has caused decision-making problems and affected the efficient functioning of the government agencies involved in the implementation of ICM.

Jurisdictional and Institutional Framework. Administrative jurisdiction is deemed important for the proper implementation of ICM. In the Philippines, administrative jurisdiction is determined through the administrative functions of government agencies, the unit of coastal space, and the natural resources within its national territory. The National Territory as described in Article I of the Constitution states in part:

> *The waters around, between, and connecting the islands of the archipelago, regardless of their breadth and dimensions, form part of the internal waters of the Philippines.*

The national government exercises sovereignty and jurisdiction over the entire internal waters. To protect the environmental integrity of these waters, the Department of Environment and Natural Resources exercises primary authority pursuant to Executive Order No. 192.[22] Coastal area management may be considered as an integral part of its responsibilities. In order to pursue its mandates, the DENR has formulated policies and programs that focus on the management of mangroves and associated terrestrial and aquatic flora and fauna within the marine

zone.

Notwithstanding DENR's authority, municipalities are likewise given the power to manage *municipal waters* the extent of which is expressly delineated under the Fisheries Code and Local Government Code.[23] The municipalities or cities are to manage the fisheries and aquatic resources within *municipal waters*. To assist these LGUs in fishery enforcement functions, the *Bantay dagat* members may be deputized by the Bureau of Fisheries and Aquatic Resources or local government units after receiving formal training in coastal law enforcement. In addition, Municipal and/or City Fisheries and Aquatic Resource Management Council (M/CFARMC) members may also be deputized as fish wardens to assist in the enforcement of fishery laws, rules, and regulations in municipal waters.

Needless to say, there are other national government agencies that play supporting roles to the DENR and/or LGUs. This is shown in Table 2 matrix below.

Table 2. Administrative Jurisdictions of Government

GOVERNMENT AGENCY	ADMINISTRATIVE FUNCTIONS	LEGAL BASES
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR)	Conservation of the environment and natural resources	EXECUTIVE ORDER 192 § 4 (1987).
LOCAL GOVERNMENT UNITS (LGUs)	Responsible for the management of all fishery/aquatic resources within municipal waters.	PHILIPPINE FISHERIES CODE § 16 (1998) & LOCAL GOVERNMENT CODE (1991)
BUREAU OF FISHERIES AND AQUATIC RESOURCES (BFAR) - DEPARTMENT OF AGRICULTURE	Provide technical assistance to LGUs; and enforcement and formulation of laws outside the municipal waters.	PHILIPPINE FISHERIES CODE § 64, 65 (1998).

Table 2. Cont'd

DEPARTMENT OF INTERIOR AND LOCAL GOVERNMENT - LOCAL GOVERNMENT SECTOR (DILG-LGS)	Monitoring policies on decentralization and local governance.	REPUBLIC ACT 6975
PHILIPPINE NATIONAL POLICE - MARITIME GROUP (PNP-MARIG)	Performs all police functions over Philippine territorial waters and rivers, and coastal areas.	REPUBLIC ACT 6975, as amended by REPUBLIC ACT 8551
DEPARTMENT OF TRANSPORTATION AND COMMUNICATION (DOTC) -MARITIME INDUSTRY AUTHORITY (MARINA)	Issuance of certificate of Philippine registry to commercial fishing boats	
DEPARTMENT OF TRANSPORTATION AND COMMUNICATION (DOTC) - PHILIPPINE COAST GUARD	Regulation of municipal fishing boats, Enforcement of environmental laws in the high seas and Philippine territorial waters, and Control marine pollution.	EXECUTIVE ORDER 477
DEPARTMENT OF TRANSPORTATION AND COMMUNICATION (DOTC) - PHILIPPINE PORTS AUTHORITY	Maintenance of port facilities and services	PRESIDENTIAL DECREE 505
DEPARTMENT OF TOURISM (DOT) & PHILIPPINE TOURISM AUTHORITY (PTA)	Development of tourist zones in coastal areas	PRESIDENTIAL DECREE NO. 189, as amended by PRESIDENTIAL DECREE NO. 564.
DEPARTMENT OF SCIENCE AND TECHNOLOGY (DOST) - PHILIPPINE COUNCIL FOR AQUATIC AND MARINE RESEARCH AND DEVELOPMENT (PCAMRD)	Research and development for fishery and aquatic resources.	EXECUTIVE ORDER 128.

Agencies involved in ICM.

Furthermore, administrative jurisdiction for ICM initiatives is also determined either by the units of coastal space, or the natural resources within its territory. Administrative jurisdiction of coastal spaces becomes increasingly complicated if spatial and resource jurisdictions are accounted as well. For instance, as to the first, municipal waters are generally under the control of LGUs. However, should there be endangered species (i.e., green turtles or dugongs) in this aquatic area, then the Protected Area and Wildlife Bureau of the DENR retains jurisdiction over them.

In the case of foreshore areas, the DENR is primarily responsible for awarding Foreshore Lease Contracts, while the LGU is charged with zoning of foreshore lands within their respective territories. Other agencies are still involved through various mandates such as the Housing and Land Use Regulatory Board which approves the land use plans and zoning ordinances of LGUs, the BFAR which designates foreshore lands as reservations for fish sanctuaries and as mangrove cultivation areas, Department of Public Works and Highways which approves permanent improvements, the Department of Tourism when the area is a tourist zone, and the Philippine Ports Authority when the area involved is a port zone.

Altogether there are a number of juridical units in the government that exercise separate management powers, authority, and mandates relevant to ICM. In particular, cabinet-level departments, bureaus, and attached agencies are charged with directly or indirectly regulating activities, spaces, and resources in the coastal zone. Various national councils also supervise the regulation of access, use, and allocation of coastal resources and spaces. Other entities are also present in the milieu as technical, advisory and recommendatory councils. While the list of institutions is somewhat impressive, only a fraction thereof is totally or primarily involved in coastal management affairs.

Various laws cover a myriad of activities that directly affect the coastal zone and its resources. Naturally, these laws create policy issues and conflicts. Overlapping and conflicting jurisdictions of agencies and regulatory efforts eventually lead to inefficiency and ineffectual government policies and undertakings due to default, disparate goals and objectives, uncoordinated projects, and rivalry.[24] This is more than apparent in the Philippines. The lack of an effective and integrated coastal management program is due in part to the absence of a rational framework for ICM, which will be discussed comprehensively in the succeeding section.

Discussion of Issues

A. No Specific Legal Framework for ICM in the Philippines

A legal framework for ICM is necessary to ensure that government policy for ICM is implemented and ICM-related laws are enforced. Without the legal framework, there is simply no basis in which policies can be formulated and actions can be implemented. ICM is based on both statutory and participatory elements. The statutory framework is the means necessary in order to formulate the policies and to provide authorities for government institutions with the end of managing coastal and marine resources in an integrated manner. An institutional framework is indispensable to ensure coordination and/or coordinative action by government and non-government institutions in the implementation of ICM programs.

Despite the presence of numerous laws relevant to the coastal zone and its resources, there is a total absence of an integral and coherent program and policy for the integrated management of these resources. The multiplicity of laws has not benefited ICM. There are inadequacies and discrepancies in the legislation (e.g., out-dated laws, not adapted to new principles). And these laws commonly overlap in subject matter and delegate various types of authority and responsibility over the marine environment to

numerous government agencies. For instance, much of the coastal environmental legislation dates back to the 1970s. Presidential Decree Nos. 705 and 1586 are good examples. Moreover, some of these laws or decrees still adopt the top-to-bottom implementation approach over the community-based paradigm. In addition, some laws tend to overlap with each other. For example, the Fisheries Code and the Department of Agriculture understandably give premium to food security and productivity, yet the DENR emphasizes resource conservation. Thus far, no attempt has been made to harmonize these laws.

The long history of coastal management in the Philippines is also marked by a lack of coherence between sectoral policies. Coastal management initiatives had to work within existing laws and institutions that do not necessarily support integrated management of the coastal zone and its resources. For instance, the DENR has its own ICM agenda that it pursues via the Coastal Environment Program (CEP). This is without regard for other species-related projects that seek to protect the turtles, dugongs, or whale sharks. On the other hand, the DA also caters to ICM-related undertakings, such as promotion of fish reserves and refuges.[25] The DA also adheres to objectives that impact on ICM concerns. These objectives include the conservation of fishery resources,[26] and more specifically the management of "fishery and aquatic resources, in a manner consistent with the concept of an integrated coastal area management in specific natural fishery management areas...."[27] Moreover, the coastal LGUs also have their own parochial fisheries and coastal management ordinances. Oftentimes, these pieces of local legislation generally mimic what existing national laws on the same subjects already treat. In short, there is redundancy.

What is sorely lacking, then, is a national legislation dedicated purely to ICM. Notwithstanding the growing interest and the many good initiatives on ICM, there is still no national ICM policy and institutional framework. Clearly, there are factors which are limiting the implementation of an integrated legal framework.

First, the legal and institutional framework for ICM has not been formally adopted. Elements of a fully integrating structure exist but not brought together in one single decree. Although enabling laws for coastal management in general exist, no legal and institutional framework for ICM in particular is present. Attempts were made in the past to formulate and recommend programs for the integrated and coordinated management of Philippine maritime and ocean affairs through cabinet committees.[28] However, the existence of these committees was essentially short-lived for reasons not documented. For now, there is no specific agency appointed as solely responsible for ICM because there is still no national ICM policy/strategy. Although the DENR attempted to draft such a policy a few years ago, this was never formally adopted in a strict legal sense.

Second, the fact that ICM process is still in its early stages and sectoral approaches tend to dominate is another factor which limits integration. Historically, separate legislation approached each issue sectorally. There was a law for each of the resources found within the coastal ecosystem and administrative arrangements followed the same pattern. There is insufficient horizontal and vertical coordination because administrative jurisdiction is situated at different administrative levels (national, regional, provincial, and municipal) and at different government agencies (DENR, DA-BFAR, etc.).

Supportive Legal Framework. Nevertheless, ICM is not a lost cause altogether. There are still encouraging signs in the pursuit of a functional Philippine ICM. Presently, the DENR has proposed a National Coastal and Marine Management Policy and is currently undertaking public consultations on the proposed framework. Whether or not this will result in the acceptance of a national ICM policy or common ICM strategy still remains to be seen. DENR Secretary Heherson Alvarez[29] notes that the Coastal and Marine Management Office (CMMO) will serve as the national coordinating office of the DENR for all consultations on the

proposed framework and all other coastal and marine environment activities.

Moreover, statutes and regulations that influence coastal management in a variety of ways have been in existence for decades. Similarly, the emergence of coastal laws in the 1990s has useful implications for ICM implementation. Two of these laws—the PFC and the LGC—are two good steps toward ICM.

In accordance with the PFC, municipal and city governments are to be solely responsible for the management of the resources within their territory.[30] There is likewise a clear legal mandate for LGUs to achieve the state policy objective of integrated management of fishery and aquatic resources. And to support integration, Integrated FARMCs serve as the venues for close collaboration among LGUs in the management of contiguous water resources.

Legal support for ICM is also found in the LGC. Section 3 thereof provides that LGUs shall share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction. Furthermore, pursuant to the General Welfare Clause,[31] the LGUs shall discharge the duties and functions devolved to them such as, *inter alia*, implementation of community-based forestry projects, solid waste disposal systems or environmental management systems, tourism facilities and other tourist attractions, and enforcement of forestry laws, pollution control laws, small-scale mining laws, and other laws on the protection of the environment.

Finally, the LGC supports inter-LGU undertakings. Section 33 of the LGC provides that LGUs may, through appropriate ordinances, group themselves, consolidate, or coordinate their efforts, services, and resources for purposes beneficial to them. Thus, the LGUs involved may, upon approval by the *Sanggunian* (local legislature), contribute funds, real estate, equipment, and other kinds of property and appoint or assign personnel under such terms and conditions, as may be agreed upon by the participating local units through a memorandum of agreement. Inter-

agency agreements are often resorted to by LGUs, especially those around bays and lakes, to resolve conflicts, and to achieve some form of coordination.[32] However, these types of agreement are often criticized to have no true permanency in nature and effective only as long as the agencies are disposed to honor them.[33] Hence, these agreements are solely dependent on the continued interests of the LGUs to cooperate with each other.

Supportive Jurisdictional and Institutional Frameworks. There are jurisdictional options available for ICM. Under national laws, the DENR and the municipal and/or city governments are at the forefront of all other governmental units and/or agencies in the implementation of ICM.

By virtue of Executive Order No. 192, the DENR, which was created in 1987, is tasked with the duty to conserve and protect the natural resources in the entire archipelago. Its power is comprehensive and extends from the terrestrial to the marine environment. However, the Bureau of Fisheries and Aquatic Resources (BFAR), which is technically under the Department of Agriculture, has a historical mandate over the regulation and management of all fishery resources in the Philippines. This authority of BFAR, thus, limits the more expansive authority of the DENR.

With the introduction of the LGC, the legal authorities over the management of the coastal and marine zones have been consolidated and assigned to a single entity—the municipality or city. Historical administrative arrangements showing the DENR and BFAR with similar authorities have been changed. Hence, *a priori*, LGUs have the legal authority to set policies and programs to manage the resources found within their territorial boundaries. On the other hand, national government agencies like the DENR and BFAR are secondarily responsible and are only expected to provide technical assistance to the LGUs as far as the management of municipal waters is concerned. If these national and local units can strike a good balance of powers and authorities

through constant communication and increased collaboration, ICM will slowly emerge.

Under both the LGC and PFC, the jurisdiction of municipalities and cities, which include the municipal land and water area at least up to 15 km from the shoreline, enables these LGUs to initiate ICM within their territorial boundaries. The LGC likewise reinforces the participation of NGOs in local governance, particularly in the delivery of basic services, which include coastal resource management. Thus, local governments can now be considered at the forefront of the efforts to manage the coastal and marine environment.

However, the management by local governments is still at its infancy while its programs are still riddled with bureaucratic problems and political uncertainties.[34] If a national ICM policy or strategy will not be adopted, programs and policies affecting the coastal zone and its resources would always be vulnerable to changes in policy, which is a real consideration in view of the political and administrative changes in local governance. Hence, there is an increasing awareness of the growing need for a national policy or strategy because without which there will be neither a common understanding nor a shared vision to guide LGUs towards ICM.

In brief, the influx of national laws and policies for coastal resources management occurred only in the 1990s. An aggregate of these laws may provide a promising platform for sustainability. The LGC is one such law that also bears a great potential for sustainability. Coupled with what the PFC provides, the intent to work towards sustainable integration is clear. Specifically, the elements for ICM are clearly apparent in view of the integration of local governments for the management of common resources pursuant to LGC and PFC provisions.

The importance of a national policy for ICM cannot be overemphasized. It provides the basic structure for implementation. But policies are good only as long as the government intends to implement and enforce them. Effective

coastal policy and law implementation must address all aspects of the law enforcement continuum including legislation and regulation, apprehension, prosecution, judgment, education, and monitoring.[35] However, law enforcement is always cited as one of the problems affecting the effective implementation of coastal management programs in the Philippines.[36] The next section discusses some of the enforcement issues in two areas in the Philippines.

B. Enforcement Issues

If an ICM program is well planned and implemented, then sustainable benefits from coastal resources can accrue to the greatest number of people.[37] However, effective implementation of ICM is oftentimes hampered by the lack of enforcement of coastal and marine laws due to some major obstacles such as conflicting policies, laws, and implementation programs; lack of patrol boats and other basic equipment to conduct monitoring and surveillance; lack of adequately trained coastal law enforcement units; slow justice system; and lack of public awareness of fisheries laws and consequences of illegal activities.[38] Without effective coastal law enforcement, ICM simply cannot succeed. Hence, aside from the legal and institutional framework, law enforcement will also be used as a measure to assess the ICM sustainability.

Law enforcement process goes through the following phases: prevention, detection, apprehension, prosecution, and imposition of penalty. The process usually starts at the LGUs that are mandated by the LGC and PFC to enforce fisheries and other related laws within their territory.[39] LGU officials who are charged with primary responsibility for coastal law enforcement are the *Barangay* Captain, Municipal or City Mayor, Provincial Governor, local PNP Chief of Police, *Sanggunian* (local legislative council) members, and other local officials.[40] In addition, citizens, volunteer groups, and other interest groups such as Municipal FARMCs, *Bantay dagat,* and deputized fish wardens play an important role

especially in the preventive aspect of coastal law enforcement.[41] At the national level, key agencies with mandates for coastal law enforcement consist of uniformed and non-uniformed agencies,[42] and these include: PNP, PNP-Maritime Group, Department of Interior and Local Government, Philippine Coast Guard, DA-BFA, Philippine Navy, DENR, DOJ, etc.[43]

Because the research project focused on two case study sites: Bais Bay in Negros Oriental and Mabini in Batangas, this paper will consequently focus on enforcement issues specific only to these sites. In a socio-economic study,[44] it was noted that majority of the respondents (project and non-project participants) felt that before the start of the implementation of the projects in Bais Bay, violation of laws was rampant. During the implementation, law enforcement improved. When the projects were terminated, majority of the respondents felt that violation of rules was the same or decreased. However, they reported that illegal fishing was stopped or minimized after the projects. On the other hand, the majority of the respondents in Mabini reported that rules and regulations were violated before and after the ICM project. Law enforcement only improved during project implementation when illegal fishing was stopped.

Based on the in-depth interviews with law enforcement agents in the local communities and the concerned government agencies, some enforcement issues were uncovered. The following sections, from B.1 to B.7, will discuss these issues and uncover the factors that affect sustainability of the enforcement measures.

B.1 Conflicting Policies. Government formulates policies to aid in managing use, access, and allocation of resources. However, conflicts among resource users often arise due to ambiguous policies and differing interpretations. In Mabini, the controversy centers on the interpretation of a municipal ordinance regulating diving and fishing. In the case of Bais Bay, however, the enforcement of mangrove laws is hampered due to confusing policies on mangrove cutting.

Contrasting Interpretations of MPA Ordinance. Municipal Ordinance No. 11-91 established portions of *Barangays* San Teodoro and Bagalangit in Mabini, Batangas as "fish sanctuaries", namely: Twin Rocks, Arthur's Rock, White Sand Rock, and Cathedral Rock. The Ordinance also declared as a marine reserve the entire shoreline and reef of 700 meters offshore. [Appendix 1 shows the original text of Ordinance 11-91].

In 1993, an amendment was made to Ordinance 11-91. Only three fish sanctuaries were retained in Twin Rocks, Arthur's Rock, and Cathedral Rock. [Appendix 2 shows the complete version of the Amended Ordinance]. The amended Ordinance provides, under Section 3 thereof, that SCUBA diving and snorkeling are prohibited inside the sanctuary; in Section 4, catching of fish and gathering of corals within the sanctuary is banned. On the other hand, traditional fishing using hook and line, spearfishing without SCUBA or compressors, use of nets or *salok* for catching *dulong* and traps are allowed outside of the fish sanctuaries but within the marine reserve.

Curiously though, after the proviso establishing White Sand Rock as part of the marine reserve area, the following rider statement: *"SCUBA diving and snorkeling is [sic] absolutely prohibited inside the sanctuary"* was inserted. A cardinal rule in the interpretation of statutes provides that the words, phrases, and provisions are to be interpreted in their ordinary, commonly accepted usage, and without resort to forced or subtle construction. Hence, because the Ordinance uses the word *sanctuary* in referring to the prohibition on SCUBA diving and snorkeling, this cannot be construed in another way.

However, another rule of statutory construction states that every part of the statute must be interpreted with reference to the context. This means that since the rider statement immediately followed the proviso referring to White Sand Rock as a marine reserve then the prohibition against SCUBA diving and snorkeling may have referred to any of these activities within the marine reserve. But what is unclear is whether the term *sanctuary* refers

to the White Sand Rock marine reserve or to the three fish sanctuaries. In actual usage, the two terms—marine sanctuary and marine reserve—may be interpreted to mean the same kind or different MPAs.

This confusion is evident in the study area because, as disclosed by one ICM practitioner, the Ordinance was enacted to create better SCUBA diving areas and to stop illegal fishing.

> *Under the 1991 Ordinance, diving was not restricted, except for spearfishing using SCUBA. In the marine reserve, all illegal fishing activities were banned. It was aimed at stopping illegal activities of fishermen coming from Tingloy (the neighboring island LGU)...and to create better SCUBA diving areas which serve tourism interests...*

However, the Ordinance was also aimed at protecting the integrity of the corals and breeding areas of fishes. According to a municipal official in Mabini,

> *The objective is to protect the corals and at the same time to have a breeding area for fishes. Because HARIBON (a local non-government organization) explained, and I also believe that if there are sanctuaries, these will serve as breeding places. So, the fishes will multiply and will migrate somewhere in the area of Mabini. In this case, the fishermen will benefit from the fishes that have migrated. That is one of the concepts used.*

Most respondents also reported that the Ordinance was amended in 1993 without proper consultations. Furthermore that the amendment was done at the instance of a group of dulong fishermen in the area. A resort owner affirmed their claims in the following statement.

> *One of the reasons why the Ordinance was amended in 1993 was because the dulong fishermen were very upset about the 1991*

> *Ordinance. They wanted to take White Sand Rock (a sandy area which is their dulong fishing area) and to allow the dulong fishing in the area. They banned diving because they wanted to get back at the resorts. There were no public consultations done...*

Although the amendment expressly banned any diving activity within the foregoing sanctuaries, this ban has not been enforced. One of the main reasons why it has not been enforced is the different interpretation given to the ambiguous provision on diving. Local fishermen are unanimous in asserting that diving is not allowed inside the sanctuaries. One fisherman claims that diving causes a lot of disturbance inside the sanctuary.

> *Diving is really prohibited inside the sanctuary because how can the fishes breed if there are lots of disturbance.*

On the other hand, one resort owner asserts that the prohibition on diving is overlooked because the area is commonly regarded as a diving spot.

> *In terms of the Municipal Ordinance, which states that diving is not allowed in MPAs, people are dealing with it with their eyes closed. Because even before this area became an MPA, even before the Municipal Ordinance, this area is already a diving spot. [emphasis added]*

Contrasting interpretations of the established rules do lead to non-enforcement or passive enforcement of law. According to a *Bantay dagat*:

> *Yes, we are not seriously enforcing the law or ordinance concerning the anchorage and diving in the sanctuary. We are still trying to hold a meeting with boatmen and divers concerning these matters but unfortunately they don't show up.*

Admittedly, non-enforcement of this Ordinance has become one

of the significant issues that militates the *Bantay dagat* against continually enforcing the ban on diving and even, against fishing inside the sanctuaries as well.

Unclear Mangrove Policies. The DENR is primarily responsible for mangrove management in the Philippines by virtue of Presidential Decree 705.[45] The Integrated Social Forestry (ISF) program was implemented in 1982 and provides, among others, incentives for local participation in the co-management of forest resources, through the provision of legal tenure over forest areas.[46] In Bais Bay, the ISF program has been centered on the provision of certificates of mangrove stewardship to local residents.[47] Mangrove policy changes culminated in 1990 with the passage of DENR Administrative Order 15 which prohibited the granting of mangrove timber license and/or permit of any kind that authorizes the cutting and/or debarking of the trees for commercial purposes in areas outside the coverage of Fishpond Lease Agreements (FLAs) and mangrove plantations.[48]

Subsequently, the cutting of all kinds of mangrove species was strictly prohibited under Section 71 of RA 7161.[49] This new decree has led to confusion with respect to the principles laid down under the ISF Program. Based on the principle of land stewardship, individuals, families, or forest communities/ associations including indigenous cultural communities may enter into stewardship agreements called Certificate of Stewardship Contracts (CSCs) with the DENR. Thereafter, these mangrove plantation developers are allowed to cut planted trees found within and adjacent to the social forestry area, whether intended for personal or commercial purposes.

According to a DENR employee, the differing policies have complicated matters and created an obvious predicament for some of their employees working in Bais Bay.

> *Because of CSC, they are allowed to cut and then here comes a law saying there is no cutting of mangroves. This is really a problem for us. Which*

> *would prevail—the banning or the CSC [because DENR also issued that CSC]?*

The problem has also confused local enforcers in Bais City. Presently, there are CSC holders in Barangay Okiot of the City where the Talabong Mangrove Forest is situated. A local official reports that CSC holders are confused whether they are allowed to plant and develop (which includes cutting) mangroves.

> *Private individuals have planted mangroves through a CSC. These people are confused about the ban on cutting since they feel as though they are deprived of their private property. This confusion has even resulted in a controversy in one barangay in Bais...*

Another policy problem occurs for mangrove areas which have been previously released for fishpond development but are now unutilized or abandoned. A DENR official observes that abandoned fishponds create opportunities for illegal cutting of mangroves to happen.

> *In the 1960s, the Philippine government started to develop mangrove areas into fishponds and banks accepted some of these fishpond areas as collateral for private loans. But when the loans remained unpaid, the banks foreclosed the fishponds. Due to the foreclosure, a number of mangrove areas were abandoned after that. It is in these areas where there are unregulated cutting of mangroves.*

In connection with this issue, this DENR official admits that his office intrinsically loses authority to the BFAR when mangrove areas are released for fishpond development.

> *BFAR goes into fishpond, DENR does not allow cutting, so how could those areas be developed as fishponds? But how could we allow cutting if we spend millions in mangrove reforestation. Those are already big, standing trees. Why should*

we allow them to cut and we are even planting? It is hard to plant and hard to grow.

But more confusion is created because the DENR has to retain its authority to enforce the ban on cutting. While the DENR strictly adheres to the ban on cutting, the BFAR implicitly allows it due to its fishpond development program. Clearly, a conflict arises in this instance.

B.2 Confusion of Enforcement Roles. Torell[50] observes that the existing institutional set-up is not only complex, confusing, and sectoralized, but more importantly, it is fragmented. This fragmentation is one of the major systemic hindrances to more effective management of the marine and coastal zones.[51] Multiple laws and regulations exist, possibly inconsistent with each other, and oftentimes, various agencies or levels of government apply these differently. These issues are further elucidated in Mabini and Bais Bay.

Overlapping Jurisdictions. The primary responsibility to enforce environmental laws in municipal waters lies with the LGU. Hence, full prosecution of cases can be done by the LGU alone with minimum help from the maritime police and the coast guard. However, according to Mario (not his real name), a *Bantay dagat*, cases have not been fully prosecuted not because of lack interest on their part but because their powers overlap with that of the Coast Guard or Philippine National Police.

Q: Is this due to lack of interest to fully prosecute cases?

Mario: We will never establish the fact that we lack interest to fully prosecute cases. We will still follow and respect the law but sometimes our powers overlap with those of other sectors like Coast Guards or PNP.

Q: What are the difficulties or constraints encountered which affect the full prosecution of

cases?

Mario: There are people out there whose authority over the prosecution of our cases overlaps with ours and that is beyond our control.

One of the difficulties of the Bantay dagat is the overlapping of jurisdiction with other agencies, leaving them feeling powerless. While they are committed to fully prosecute cases, other players enter the enforcement picture resulting in an overlap of law enforcement functions. The overlapping and consequent limitations of Bantay dagat roles are perceived to have impinged on the prosecution of cases in the area.

Uncoordinated Programs. The lack of coordination among the different LGUs in Bais Bay: Bais, Tanjay, and Manjuyod is a festering problem. For as long as it can be remembered, there have been no common management actions by the three LGUs in the utilization, allocation, and access of Bais Bay. In fact, these LGUs have drafted their coastal resource management plans independent of each other. One City official confirms that the implementation of these plans is likewise uncoordinated.

Yes, in fact they [Manjuyod] have a very good CRM Plan compared to us [Bais]. But still they don't coordinate with us.

Because the LGUs engage in disjointed management strategies, each LGU undertakes management activities that are not acceptable to other LGUs around the Bay. The LGU officer further admits that there is lack of common understanding among the three LGUs.

...Though we're supposed to have the sea zoning, which was already approved, we could have started it but ... as for now it remains pending. [You know] delineation is very important because ... we are also in between Tanjay and Manjuyod. What happens is that Tanjay is already doing oyster farming in our area and is also fishing in

> *our area. That is now the big problem because there is no common understanding among the three municipalities.*

One of the contributing factors for the absence of coordination between LGUs is the so-called 'sandbar issue'. The sandbar[52] has been an ongoing controversy between Bais City and Manjuyod, with both of these LGUs claiming the sandbar as part of their respective territories. Although the issue has been brought to the *Sangguniang Panlalawigan* (provincial legislative council) for resolution, no decision has been reached. Presently, there is a pending case in a civil court. For as long as the ownership and possession of said sandbar remains unclear, problems like pollution cannot be addressed. In fact, a City official claims

> *...We also have this issue here at the sandbar and it all started when they [Manjuyod] invited people to stay there overnight... and that's going to cause pollution, and the red tide bloomed there in the North, so I'm worried about it ...*

It is quite clear that the LGUs are uncooperative with each other. Likewise, joint law enforcement efforts are not undertaken by these LGUs while violations continue to occur in the Bay. Simply put, inter-LGU controversies and separate plans have inhibited joint management efforts and common actions for the protection of Bais Bay.

B.3 Selective Enforcement. Selective law enforcement, by reasons of political interference and discretionary prosecution employed by the local enforcers, exists in both Mabini and Bais Bay. The strong influence of political leaders in the community has often resulted in non-prosecution of cases. Local political leaders often persuade law enforcers to excuse minor infractions of the law. Likewise, the wide discretion of local enforcers restrains the full prosecution of cases.

Political Interference and Discretionary Prosecution. There

is selective enforcement in Mabini because of political payoffs and pressures. Interference of politicians favoring the dismissal of cases filed against their political allies and followers have made it difficult for the *Bantay dagat* to file cases and prosecute offenders. There are also instances where the Barangay Captain or the Mayor requests the settlement of cases because, according to a *Bantay dagat*,

> *...the offender is a relative of the Barangay Captain or the Mayor... You can't get politics out of these cases...*

There was also a time when the Mayor even requested to settle the case against commercial fishers in order to accommodate the requests of Mayors from adjoining towns. This was raised by one *Bantay dagat.*

> *...Sometimes even Mayors from other towns ... will ask our Mayor not to proceed with the filing of charges. Our Mayor would in turn ask the police and the head of the Bantay dagat to just settle the case and not prosecute because he [the Mayor] already has a verbal agreement with the other mayors that the offenders will no longer break our laws... it is a natural process in the LGU.*

However, there are also those who believe that *barangay* officials and the *Bantay dagat* exercise their discretion in the settlement of cases. For instance, local *Bantay dagats* will simply excuse an offender who is a resident of the community.

> *... the offenders who are residents of the community] are usually freed because the enforcers know them.*

So, enforcement is highly personalized because the *Bantay dagat* can exercise their discretion, on a case-to-case basis, in choosing whether an offender should be fully prosecuted.

Political Interference. Because of the strong political

influence of the Mayors, there have been instances when laws were selectively enforced in Bais Bay. According to a former *Bantay dagat* president, more cases are actually dismissed due to political interference.

> *Q: What are the situations when you didn't pursue a case against the violator?*
> *Larry: There were some that were beyond my control, especially cases involving offenders who were close to the Mayor. Whenever we catch these people, we were told to send them directly to the Mayor. Likewise, at times, when there was already an affidavit, we just waited for the subpoena summoning us to meet at the fiscal, but then the fiscal is also under the Mayor. So the case would just be forgotten, and later on it would just disappear. That's what usually happens.*
> *Q: So, when the cases are settled out of court, is it often dismissed?*
> *Larry: Yes, there would be no case anymore. Especially when the person is close to the Mayor..., well, I think you cannot deny that fact.*
> *Q: In your estimate, how many have been already imprisoned (prosecuted)?*
> *Larry: You can just count them, there are more cases dismissed. The reason is political interference on people's will.(2002)*

In one instance, the Mayor sought the release of 15 people who were caught by the *Bantay dagat* with a truckload of illegally cut mangroves.

> *Q: So, what happened to the offenders?*
> *Larry: During the time of Mayor xxx? Those 15 people we caught...the Mayor even gave them money for fare. We, who caught them..., he didn't even give us fare.*

This type of political interference is the source of

discouragement and frustration among the *Bantay dagat*. Most of the time, it keeps them from fully executing their enforcement functions.

B.4 Minimal or Non-punishment of Offenders. Under the current legal set-up, enforcement of law means that administrative sanctions or criminal penalties are imposed for violations of environment-related laws such as fishing using dynamite, cutting of mangrove trees, or causing pollution. These violations result in cases filed and offenders penalized with fines or imprisonment as dictated by law. However, in most of the violations in Mabini, Batangas and Bais Bay, offenders were not penalized at all and in the rare times that they were, only with the minimum penalty.

Imposition of Minimum Penalty. Cases which were prosecuted in Mabini resulted in the imposition of the minimum penalty or even dismissal for lack of evidence.[53] Though there may be cases that were filed for violations of environment-related laws, some of these cases are filed pursuant to a municipal ordinance rather than a national law. According to a Mabini police officer,

> *What happens is that we are pressured to file the case as an offense against a municipal ordinance rather than under the national law because the former merely imposes a lesser penalty.*

In this instance, although offenders are arrested, they are soon released after paying the minimum penalty (e.g. fine amounting to only P1,000). The penalties for commercial fishing pursuant to the Municipal Ordinance and the national law, Fisheries Code, are distinguished in Figure 1.

Figure 1. Penalties under Ordinance 11-91, as amended, and Fisheries Code

VIOLATION	ORDINANCE 03-2000	FISHERIES CODE
Commercial Fishing	First Offense - FINE not exceeding P1,000 Second Offense - FINE not exceeding P2,000 Third Offense - FINE not exceeding P2,500	FINE equivalent to the value of catch or P10,000 &/or IMPRISONMENT of 6 months

On the other hand, the enforcers justify the mere imposition of fines. A resort-owner enforcer discloses that

> *...with small fishermen who are poor people who need to feed their family, it's already my initial instinct to just forgive them. I often give them canned goods because what they catch is not even enough for the whole family.*

Thus, some enforcers believe that an infraction of a municipal ordinance must be punished only minimally or not at all.

Minimal or Non-punishment at the Pre-prosecution Stage. Only a few mangrove-related cases have actually been filed in the civil courts of Bais.[54] However, when these cases were filed, the offenders were penalized. But some of these cases were also dismissed or only minimal penalties were imposed (e.g. fine of P20.00). Under current laws, the penalties for the cutting of mangrove trees are shown in Figure 2.

Figure 2. Penalties for Illegal Cutting of Mangrove Trees.

VIOLATION	LEGAL PROVISION	PENALTIES
Illegal conversion of mangroves	RA 8550 Sec 94	Imprisonment from 6 years and 1 day to 12 years and/or fine of P80,000; Provided, that if the area requires rehabilitation or restoration as determined by the court, the offender should also be required to restore or compensate for the restoration of the damage.

Fig. 2 (Cont'd)

VIOLATION	LEGAL PROVISION	PENALTIES
Unauthorized cutting, gathering, and/or collecting timber or other forest products without legal documents	PD 705 Sec 68	Qualified theft as defined and punished under Arts. 309 and 301 of Revised Penal Code; Confiscation of timber or forest products cut, gathered, collected, or removed and the machinery, equipment, implements, and tools used therein; Cancellation of license agreement, lease, or permit and perpetual disqualification from acquiring any such privilege without prejudice to further civil action.

Oftentimes, cases do not reach the civil courts because these are compromised at the pre-prosecution stage (i.e., before the filing of the criminal complaint). At times, cases are also settled at the administrative level. For instance, a DENR officer usually issues a warning and orders first-time offenders to plant another mangrove tree in exchange.

> *...Then if ever, they are called for a dialogue. If there's just a small destruction, it is often settled amicably with some compromise. And then they are just ordered to plant another mangrove to replace the ones they cut down. So, it is settled immediately. [DENR] does not need to pursue the case. But if it's already a big problem, then maybe that's the time it would result in a case....*

The local DENR also enters into a verbal agreement or understanding with the offender who is made to promise not to further commit any violation of the law. One Provincial Prosecutor justifies this,

> *Sometimes, the laws have to be humanized. So long as there is no substantial damage on the part*

> *of the government, the applications of the law need not be strict.*

Reprimanding first-time offenders are also practiced by the *Bantay dagat* in Bais Bay. There are instances where the *Bantay dagat* merely warns the offenders, upon the instance of the *Bantay dagat* president or a *barangay* official. A *Barangay* Captain in Manjuyod, also admits of merely giving a warning to illegal fishers in the area and if the latter heed such warnings, then the illegal act is forgiven.

> *Usually when we arrest someone, we advice him not to continue the illegal activity. Most often he will always follow what we tell him. That is why we no longer have any incidence of mangrove violations.*

There may also be instances where offenders are compulsorily detained or kept in police custody by the local enforcers. One local official in Tanjay deems such detention as sufficient to deter offenders from further committing the same offense again.

> *Actually what we do is try to scare the person that he would end up in prison especially in the presence of the DENR representative. But if it's a first-timer we kind of soften up because it is not a habitual act. If the people from the DENR will not pursue the case, what we do is make sure that everybody in the community will understand that the act will not be repeated....*

B.5 Dominant Informal Compliance Systems. Informal compliance mechanism begins at the discretion of village leaders (Mayors, *Barangay* Captain, and Councilors) and local enforcers (*Bantay dagat*) who enforce the laws, including the imposition of penalties and sanctions. This informal structure somehow dominates the formal legal system in the prosecution and judgment especially for environmental infractions committed by local community members. Resort to such often excuses offenders from being

penalized by the formal compliance bodies, e.g., courts.

Resolution of Cases within the Community. In Mabini, *Bantay dagat* members and resort owners monitor and guard the sanctuaries. When illegal fishers are arrested, informal systems are utilized before a case is filed in the civil courts. Together with the *Barangay* Captain, local enforcers often exercise their discretion and settle cases against first-time offenders. These offenders are excused and merely warned that repeat offenses will be punished severely. The warning is often considered as adequate deterrence for further offenses. This can be seen in the following statement by a *Bantay dagat*.

> *First offense, we talk to them and discuss things out. They are warned and later we share with them that we have laws that will be implemented upon them if they do it again.*

A Municipal official further discloses that cases are usually settled at the municipal hall rather than at the civil courts.

> *The cases we have here no longer reach the courts; they are settled here in our municipal hall although they go through the processes of been filed in court and the offenders are only made to pay fines. The offenders always try to make a bargain for their cases. This people are not really criminals but are just trying to make a living so we settle the cases amicably.*

Thus, this type of compliance system comprises of either the local political leaders (e.g., *Barangay* Captain, Councilors, Mayor) or the local enforcers (e.g., *Bantay dagat*, resort owners). In these cases, prosecution of cases pursuant to regular criminal procedures is often not adhered to. As a result, offenders are not punished accordingly.

Combining Formal and Informal Systems of Compliance. The informal justice system in the community begins with the *Barangay* Captain and the *Bantay dagat* for cases

regarding the cutting of mangroves. For the *Bantay dagat*, the decision to allow out-of-court settlement depends on specific circumstances. On one occasion, a *Bantay dagat* allowed the offender to go scot-free when there were no fellow *Bantay dagat* members around.

> *...these are done only when there are no other Bantay dagat members around. Otherwise, the other members will say that he [Bantay dagat] is not setting a good example.*

However, the enforcement process goes through the formal system of compliance in the administrative bureaucracy as well. A DENR officer admits to allowing settlement or compromises for offenses causing minor destruction. Thus,

> *... If there's just a small destruction, it is often settled amicably and a compromise is made. And then they are just ordered to plant another mangrove to replace the ones they cut down. So, it is settled immediately. [DENR] does not need to pursue the case. But if it is already a big problem then maybe that's the time it would result in a case.*

As a rule, primary jurisdiction of most environmental disputes belongs to the proper administrative agencies following the rule on prior exhaustion of administrative remedies. Before a case is filed in court, the community environment officer (CENRO) of the DENR can decide at the initial stages of the investigation whether or not to proceed with the filing of the case. But DENR officers often abuse this discretion.

B.6 Inadequate Enforcement Capacities. A prominent scholar in environmental law in the Philippines once stated that the efficient implementation of coastal-related laws rests largely on law enforcers and resource management experts.[55] But the ineffective enforcement of laws is sometimes due to the lack of patrol boats and other basic equipment, lack of adequately trained coastal law

enforcement units, and lack of support from the government. Needless to say, government capability for managing natural resources is often sorely inadequate.[56] These inadequacies sometimes militate against using the administrative agencies as a forum for settling disputes because these agencies have inadequate vehicles, fuel, communications equipment, travel allowances, and manpower.[57] Thus, the inadequacies of the various authorities involved in the enforcement such as *Bantay dagat*, the prosecutors, and the courts impinge on the full enforcement of laws.

Systemic Problems of Administrative Agencies. The difficulty of *Bantay dagat* members to properly equip themselves in order to be able to adequately perform their police functions is a major factor hampering their enforcement efforts. One Municipal official admits that due to lack of necessary equipment, e.g. patrol boats, flashlights, and other implements, it was hard to enforce the laws.

> *We have problems enforcing the law because we don't have enough budget — budget for the Bantay dagat volunteers and for their transportation (patrol boat, gasoline, and maintenance).*

Local enforcement is also inhibited by lack of paralegal knowledge, weak logistical support, and little financial capacity to attend court hearings. As a result, there is general lack of interest to fully prosecute cases and to resort to court processes. One court employee admits that this lack of interest has affected the efficiency of the civil courts as well.

> *The main problem here is within the justice system, they (the community) don't follow-up the case that's why it is always pending...*

When cases do reach the courts, criminal convictions are difficult because of lack of sufficient evidence. A *Bantay dagat* asserts that this is due to the inadequate knowledge by police authorities of fisheries laws.

> *We sometimes don't have enough evidence because the police still don't have enough knowledge on fisheries law.*

Thus, local enforcement efforts are often handicapped by inadequate training and lack of equipment which are essential for their effective functioning.

Inherent Problems of Local Enforcers. In Bais Bay, enforcement efforts fail to sustain because political leadership changes every three (3) years.[58] Oftentimes, official tenure of *Bantay dagat* members is co-terminus with the incumbent Mayor. They may be changed every time a new Mayor is elected. Accordingly, for each new set of *Bantay dagat*, re-training is necessary because new members often lack the necessary experience and paralegal knowledge. According to a *Bantay dagat*,

> *Well, there are still some that use "tubli", and my co-members are still afraid to arrest them. They (new Bantay dagats) still lack experience so, what will I do?*

The *Bantay dagat* members are also inhibited by the lack of adequate personnel, boats, and other equipment. This can be seen in the following statement by a *Bantay dagat,*

> *Yes, [we have problems in detecting crimes before] because we can't patrol all of the area, because as you can see the mangrove reserve is a big area. So we really lack personnel... We also don't have [equipment] yet.*

On the part of the government, the prosecution of cases by the DENR is sometimes derailed because of lack of government prosecutors who can handle the environmental cases. According to a DENR officer, there are many cases on illegal upland logging but the office lacks the lawyers to handle these cases.

> *Definitely, we really lack lawyers because nobody would also apply due to low salary. There are*

> *many cases in the upland, usually cutting and logging [of forest products].*

Another DENR officer discloses that witnesses cannot appear in court without the needed funds for transportation and allowance.

> *...Lack of funding is also a constraint especially for transportation of witnesses and their allowance. If we can't give witnesses money for transport, we cannot expect them to appear in court...*

Aside from lack of adequate personnel, insufficient funding adversely affects the performance of enforcement duties.

B.7 Influential Compliance Behaviors. Compliance to laws cannot be wholly attributed to the use of sanctions. Oposa[59] posits that under the current Philippine legal set-up, sanctions and the use of "force" to coerce, albeit legally, are heavily relied upon in the modification of behavior, and that this legal regime relies solely on "enforcement" rather than "voluntary compliance and implementation". This type of enforcement, which is also called the "command and control" strategy, has been criticized as inefficient as well as unjust because he believes that it is doubtful whether the Philippine bureaucracy is in a position to enforce environmental legal norms given its dismal historical record.[60]

Aside from strict adherence to laws, moral sentiments can influence compliance behavior as well. An enriched theoretical model of regulatory compliance, which was developed by Sutinen and Kuperan, accounts for other determinants of compliance such as moral obligation and social influence.[61] Hence, perceptions of the fairness and appropriateness of the law and its institutions can help determine compliance as well.[62] Sutinen also provides evidence to support from a number of experiments that people do not act as free riders[63] when given the opportunity.[64] Instead, many people persist in paying for public goods although conditions allow them to maximize free riding.

Some of these determinants of compliance are employed in this study to fully understand the other non-apparent issues affecting enforcement. The following subsections will discuss voluntary compliance behaviors illustrated by legitimacy, moral suasion, and free riders.

Legitimacy to Established Rules, Policies, and Enforcement Authorities. Coastal management activities often involve the limitation of resource access and use by the coastal stakeholders. In the Philippines, the Fisheries Code mandates several mechanisms for limiting access to coastal resources. These include establishment of protected areas and fisheries management strategies such as demarcated fishery rights, limited entry into overfished areas, closed and open season, catch ceiling limitations, and licensing. Jentoft posits that fisheries management, like other forms of government interference in economic and civic life, must observe the legality principle.[65] However, he admits that legality is not a sufficient condition for legitimacy for the management system must also be justified according to some moral principles and values.[66] Without such legitimacy, strictly enforcing regulations will not be an easy task. And when the enforcement mechanism breaks down, the limitations set by established regulations are disregarded.

The legitimacy of the MPA Ordinance has been strongly questioned by the resort owners, one of the major resource users in Mabini. By far, their strongest objection to the Ordinance is the inappropriateness of the process of enactment of the ordinance. The resort owner believes that the ordinance is not appropriate for they were not properly consulted when it was enacted. Hence, their lack of recognition of the Ordinance, which prohibits diving inside the sanctuaries, is justified. A *Bantay dagat* likewise admits that no public consultations were conducted during its amendment in 1993.

> *As to the amendment of the Municipal Ordinance, we were unable to follow it up probably because the Sanggunian Bayan saw the*

> *need to change and there was someone who passed a resolution without our involvement. Which means that we were not consulted about the amendment of that Ordinance...Maybe the reason is to change and not make the Ordinance strict as that of 1991.*

The local community also believes that they have not benefited much from their share of protecting the sanctuary. A local fisherman alleges that it is the resorts that have reaped more benefits from the sanctuaries while continuing to violate the rules against diving inside the sanctuary.

> *... the sanctuary is supposed to be for the community, because HARIBON told us that after two to three years the fish there would increase. But what is happening now? We are not the ones who are benefiting from this. The resort in front of the sanctuary benefits from it ... The resorts also help in protecting although they are also the ones letting the divers in and along with that, ...when you are diving those boats are going to drop anchors and these really destroy the corals,...not the fishing done by the local community.*

Aside from the established rules, most respondents in the area admit that although there are enough and appropriate laws, these are not implemented well by the government agencies. A *Barangay* Captain thinks that the Ordinance has minimized illegal fishing but not diving.

> *I think we have enough (laws) already because as you can see the illegal fishing has already decreased. But if you look at diving, I think the law doesn't have anything to do with it, because it has not stopped.*

Hence, the ordinance was viewed as effectively implemented against illegal fishing but its effectiveness does not extend to diving.

Moral Suasion and Personal Values of Enforcers. This paper maintains that an individual's personal values influence compliance behavior. Effectively, the moral development of enforcers is an important factor in determining how enforcement is done within their jurisdictions. If the enforcers exhibit a high regard for the law and greater consideration for the legal rules, then this leads to greater compliance. Otherwise, there will be a greater tendency for the enforcers themselves to become a party to the illegal activities or to choose to ignore these illegal activities.

An apparent behavioral characteristic of enforcers in Mabini is the different views they have on what are considered illegal activities. One resort owner believes that violations within the sanctuaries are those pertaining to fishing.

> *Yes, [there are violations of MPA laws] and KKP (Kabang Kalikasan ng Pilipinas, a local NGO) bans spear fishing among SCUBA divers (tourist) but allows it among the local fishermen because according to them these people are poor. Local fishers therefore spear fish in the sanctuary everyday. These violations started in 1991 but even before the sanctuary was established the locals have been doing these violations.*

Illegal activities, as viewed by the resort owners, are clearly different from that viewed by the fisherfolk. One community member in Mabini considers illegal anchoring of boats and diving as major offenses because these can cause more destruction to the corals.

> *...we should be apprehending these boats, [as well as] divers because they are the ones that destroy the corals, not the fishing.[Emphasis added]*

On the other hand, a *Bantay dagat* in Bais Bay believes that granting exceptions to illegal acts is acceptable if offenders refrain from committing the same offense again.

> *It is not right if an offender escapes punishment. But warnings are sufficient to avert any subsequent violations.*

Likewise, a former *Bantay dagat* president asserts that when cases are dismissed due to political interference, these are beyond his control.

> *As long as we are being paid our salary, as long as we have done our jobs, and have worked accordingly, that [dismissal] is okay.*

The above comments illustrate that some enforcers in Bais Bay do not exhibit desirable values that encourage voluntary compliance to laws.

Targeting 'Free Riders'. Conditions to maximize free riding are more than available in both Mabini and Bais Bay. It is shown that given the opportunity, resource users freely utilize or access, and benefit from, public goods (e.g., MPAs and mangroves) without paying for them. One *Barangay* Captain identifies resort visitors, divers, local boatmen, and resort owners as constant violators of the MPA ordinance.

> *The resorts should also control the divers going inside the sanctuary. You know, these resorts help in the protection of the sanctuary, but because of their business they are also the ones destroying the resources.*

Likewise, the *Bantay dagat* believes that divers and boatmen should feel responsible for protecting the sanctuaries. Instead, these resource users freely access and utilize the fish sanctuaries without complying with their obligation to conserve. A *Bantay dagat* notes that boatmen do not properly anchor in the sanctuary while divers are still allowed in the sanctuary.

> *[Our] main concern is the proper anchoring in Twin Rocks Marine Sanctuary. We address these issues to the people who are abusing the sanctuary. As much as we wanted to, we would not allow*

> *divers anymore in Twin Rocks and the resort owners should be ready about our plans. [I] would like to express my disappointments and for a fact that I pity the divers who pretend to be educated in urban contexts and yet not educated enough to show concern for our coastal resources.*

Free access and utilization of resources by the boatmen and divers have frustrated the efforts of the local *Bantay dagat* to enforce the laws and regulations in the Mabini sanctuaries. Despite their recognition of free ridership, the enforcers have tolerated the continued access and use of the free riders in the area.

Conclusion and Recommendations

Majority of the ICM activities in the Philippines have ceased due to a number of factors. One such hindering factor is the absence of a clear policy framework unifying sectoral objectives and/or setting national aspirations and policy directions for ICM. The present legal structure for implementing ICM is culled from relevant provisions of the Constitution, national statutes, administrative regulations, and local ordinances. As it is, there is no single decree that sets and institutionalizes a national policy or strategy for ICM. What should be recognized is that ICM cannot be effectively implemented without an overarching policy and institutional framework.

Clear policies for ICM is needed to address the non-integration of jurisdictional authorities as well as provide mechanisms for resolving jurisdictional conflicts. The mandates of the various government institutions are presently founded on different legal authorities and dispersed among the coastal spaces and resources involved. Understandably, there are resulting inadequacies and discrepancies in the legislation (e.g., out-dated laws, gaps, and overlaps in jurisdiction) making institutional functions highly uncoordinated and

law enforcement essentially ineffective. When these policies are not enforced, ICM processes tend to break down.

Hence, a national law setting ICM policy objectives and institutional arrangements is called for. The proposed law should lay down the basic program policies for ICM. These policies must address an ICM strategy that is national in scope and at the same time adaptive to local conditions. Likewise, the national ICM policy objectives must be founded on basic integration principles, i.e., inter-governmental coordination, consistency of national policies with local actions, land-use planning and regulation, special area management, critical area protection, marine mammal protection, and environmental impact assessment. These strategies can be drawn chiefly from the United States coastal and ocean policy. Among the strength of the US coastal zone management program is its intergovernmental coordinating mechanism and its legal requirement for consistency of federal actions with state coastal policies.[67] Likewise, the United States Coastal Zone Management Act of 1972 articulates as its major premise that "[t]he key to a more effective protection and use of the land and water resources of the coastal zone is to encourage the states to exercise their full authority over the lands and waters in the coastal zone."[68] By considering all these key lessons, it is essential to provide in the Philippine ICM policy for local government planning and development of coastal resources. At the same time, a national policy that is multi-sectoral and coordinative in character must be established to oversee the formulation, adoption, implementation, and monitoring of an ICM program.

At present, local level implementation of ICM programs and projects has been provided under the LGC. However, an amendment of the existing provisions in the LGC is necessary. This amendment should focus on the expansion of authorities of the municipal governments in accordance with the principles of

local autonomy and decentralization. The best and most effective managers of coastal resources are the local government units. Local governments provide a prime institutional mechanism for the successful implementation of marine environmental protection by translating international standards and recommendations into well-grounded local programs.[69] But these LGUs are daunted by such constraints as lack of resources, lack of capability, weak law enforcement, and lack of participation. Hence, the following amendments are proposed to increase capacity and resources for local governance:

(a) ***Expansion of the present scope of powers of the local legislative and executive officers.*** Most attempts to integrate efforts by the foregoing local officers are, at best, *ad hoc* in nature (e.g. through technical working groups, advisory councils, and the like). There are two options that may available. First, an Oversight Committee can be created with membership coming from both the local legislature and executives. The Committee can serve as a venue for coordination and collaboration of projects for local ICM. Secondly, an Environment and Natural Resources (ENR) Office should be compulsory for all LGUs. Presently, the appointment of the ENR Officer is optional for all local government units[70] but for reasons of funding, the local governments prefer not to create such office. The LGC provides for an ENR Officer to be at the frontline of the delivery of services concerning the environment.[71] The ENR Officer is empowered to develop plans and strategies, particularly those pertaining to the environment, which the local executives are empowered to implement and provide for.[72] In effect, the ENR Office can be a mechanism for increased coordination and integration between the local legislature and executives.

(b) ***Enhancing the role of the provincial government in inter-LGU coordination and policy frameworks for ICM.*** The role of provincial governments with respect to ICM is limited under the present LGC.[73] In reality, the provinces do not possess direct jurisdiction over any land and water areas in the province except

to prescribe limits and restraints on the use of property within its territory. But in recent years, the trend shows that provincial governments are taking a more active role in promoting coastal resource management by providing technical and logistical support to coastal municipalities.[74] Provinces are proving to be key partners in promoting certain tasks such as providing CRM as a basic service to municipalities or cities through technical assistance, training, information management, strengthening and harmonizing local policies, evaluating and validating city CRM plans and programs, serving as a broker/catalyst to link projects and programs with the needs of coastal municipalities or cities, and promoting CRM.[75] Hence, it is the province which can best promote inter-LGU arrangements and ensure the coordination and integration of coastal management activities.

Effective law enforcement is necessary as well. Established rules are part and parcel of the ICM process. Compliance with pro-ICM rules must be attained to avert a breakdown in the implementation of management activities. This can be dealt with by addressing conditions that hamper full enforcement such as unclear policies, lack of coordination, inadequate training and education, among others. The following are key recommendations:

(a) ***Established rules and regulations must be clear from any ambiguous provisions.*** The absence of clear policies becomes a hindering factor against effective enforcement. For instance, the unclear ordinance has resulted in varying, often conflicting, interpretations among coastal stakeholders. Clear regulatory policies have to be expressly written in the law. Moreover, a comprehensive stakeholder consultation is necessary before a law is written. Thus, it is important to avoid any ambiguity in the policies.

(b) ***Jurisdictional roles must be clarified.*** Institutional weaknesses resulting in poor law implementation and enforcement are addressed by clarifying and strengthening jurisdictional mandates of the various law enforcement agencies.[76] For instance,

the *Bantay dagat* members should have proper operational guidelines in the enforcement of ICM laws. The Department concerned should expressly provide this in an administrative order. The *Bantay dagat* is considered to be at the frontline of the enforcement of coastal laws and thus, can be empowered through this administrative order to develop plans and strategies, particularly those pertaining to law enforcement

(c) ***Conflict resolution mechanisms must be developed.*** What is becoming increasingly apparent is the reliance on community processes not only in conflict resolution of resource use but in decisions of environment-related cases as well. Perhaps it is time to develop village level mechanisms for settling disputes and cases of illegal fishing violations, mangrove cutting, etc. Attaining environmental justice is often delayed by the characteristic full case dockets in civil courts. This delay somehow militates against using this as a forum for environmental disputes. The environment, simply put, cannot wait for the slow grind of justice, and thus, the tragedy is that alternative forums will be, and have already been, used by the communities.[77] This is not to say, however, that environmental litigation and the courts should be the primary or principal recourse for the resolution of environmental issues. Hence, other modes of conflict resolution can be explored whereby the legal and socio-political aspects of the controversy are crystallized and resolved by the society at large and the administrative organs of the body politic.[78] Under present laws, community resolution of certain cases is allowed through the *Katarungang Pambarangay* whereby amicable settlement by the *Lupon Tagapamayapa* is prescribed for disputes involving offenses punishable by imprisonment of one (1) year and less or a fine of five thousand pesos and less. The scope of the powers of the *Lupon Tagapagpamayapa* can be expanded to include environment cases not so much as to not make this mechanism germane to all offenses but to stress importance of environmental protection.

(d) ***Increase the capacity for enforcement.*** Capacities for law enforcement that need to be addressed are: the law-making capacity of local legislative councils and administrative agencies to write clear policies, the logistical capacity (e.g., patrol boats, equipment), funding capacity of local and national agencies, and prosecutorial capacity of enforcement authorities. LGUs must be required to deliver ICM as a basic service and hence, be enjoined to mandatorily set aside an ICM fund that would include support for the ICM enforcement units. More lawyers in government need to be trained in environmental law to ensure proper prosecution of cases.

(e) ***Encourage behaviors that lead to voluntary compliance.*** Legitimate rules and authorities contribute to voluntary compliance behaviors. Hence, regulatory measures should be set up with proper consultation mechanisms to build consensus and attain legitimacy among the coastal stakeholders. Likewise, when a rule system is embedded in the personal values of these stakeholders, then it is easier to correct illegal behavior patterns. Finally, 'free riding' is detrimental to effective law enforcement. Thus, measures to limit free access and use of the coastal resources have to be strictly enforced.

(f) ***Implementation of public education programs.*** Only a community which is fully informed and sensitized to the values of protecting the coastal environment can enhance ICM implementation and enforcement. Public education on the nature of law, aspects of enforcement, and fundamental principles can raise the awareness for environmental management and substantially reduce the burden of enforcement from the government. It can also raise the moral values of enforcement authorities and avoid the tendency of free riding. Finally, legitimacy of established rules is improved when public consultations are conducted with the stakeholders. Informed decision-making needs the active participation of the community.

Law plays a strategic role in the implementation of an effective system for the integrated management of the coastal zone

in the Philippines. Although many coastal-related laws have been used to legitimize certain coastal management measures, what is apparent is the lack of a common framework for integration of these management measures, thus resulting to ineffective law enforcement and unsustainable coastal management programs. Hence, when all legal elements are present, that is, there is a legal framework and effective law enforcement, then sustaining integrated coastal management is possible.

Acknowledgments

Thanks are due to Dr. Marc Hershman and Dr. Patrick Christie of the School of Marine Affairs of the University of Washington for their invaluable comments and untiring support especially in editing this paper. Many thanks are also due to Atty. Manuel Arbon, Prof. Roy Olsen de Leon, and Prof. Enrique Oracion for the helpful discussions and important inputs. Finally, appreciation goes to the ICM research staff: Augilbert Encontro, Wednesday Gay Gaudan, Demberge Caballes, and Esperanza Tabara for gathering the needed documents and conducting the interviews.

Notes

[1] Silliman University Marine Laboratory, Center of Excellence in Coastal Resources Management, *Document No. 7/97, Assessment of the Central Visayas Regional Project-1: Nearshore Fisheries Component 5* (1997).

[2] Department of Environment and Natural Resources, et al., *Philippine Coastal Management Guidebook Series No.2: Legal and Jurisdictional Guidebook for Coastal Management in the Philippines* 11 (2001). [hereinafter Guidebook Series No. 2]

[3] Angel C. Alcala, *Roles of Community-Based Fisheries Management and Marine Reserves in Coastal Fisheries*, 38 (3-4) Silliman Journal 165, 159-169 (1997).

[4] Primary sources contain the actual law. Constitution, court decisions, cases, statutes, treaties, and administrative regulations are all examples of primary sources. On the other hand, secondary sources are materials which comment on, explain, annotate, and critique these primary sources. Usually, they include treatises, legal periodical articles, legal encyclopedias, annotations, law dictionaries, commentaries, continuing legal education publications, opinions of the Secretary of Justice, and other agencies. Myrna S. Feliciano, *Methods of*

Legal Research 3 (2000) (unpublished manuscript, on file with University of the Philippines Law Center).

[5] It is to be noted that the legal profession has its own unique system of citation. One of the citation norms is sometimes used in this paper. The key reference is the publisher's print volume that is created over a year after a decision is handed down. At http://wwwsecure.law.cornell.edu/topics/legal_writing.html

[6] Richard B. Pollnac, Brian Crawford, and Maharlina L. Gorospe, *Discovering Factors that Influence the Success of Community-based Marine Protected Areas in the Visayas, Philippines*, 44 Ocean and Coastal Management 683-710 (2001).

[7] Bantay dagat, which literally means *sea watch*, assist in coastal law enforcement. Bantay dagat members may be deputized as fish wardens after receiving coastal law enforcement training. In some cities and municipalities, the Bantay dagat collaborates with local police, Coast Guard, and other government agencies to plan, conduct, and execute coastal law enforcement operations.

[8] Jay L. Batongbakal, *The Coastal Environment and the Small-Scale Fisherfolk: Advocacy for Community-Based Coastal Zone Management*, 66 PHIL. L..J. 204, 149-245 (1997). [hereinafter Batongbakal, *The Coastal Environment*]

[9] Amado S. Tolentino, Jr., *Philippine Coastal Zone Management: Organizational Linkages, in* Proceedings of the 5th Symposium on Coastal and Ocean Management, 1 Coastal Zone '87 704 (O. T. Mangoon et al. Eds., May 26-29, 1987). [hereinafter Tolentino].

[10] Presidential Decree No. 1151 (1977).

[11] Presidential Decree No. 1152 (1977).

[12] Presidential Decree No. 1586 (1978), as amended by DENR Administrative Order No. 37 (1996).

[13] Tolentino, *supra* note 9, at 704.

[14] *id.*

[15] Antonio G. M. La Viña, ICLARM Working Paper Series No. 5, Management of Fisheries, Coastal Resources and the Coastal Environment in the Philippines: Policy, Legal and Institutional Framework 15 (1999).

[16] *id.*

[17] Guidebook Series No. 2, *supra* note 2, at 11.

[18] Republic Act No. 7160 (1991).

[19] Republic Act No. 8550 (1998).

[20] Republic Act No. 7586 (1992).

[21] Republic Act No. 8435 (1997).

[22] Executive Order No. 192 § 4 (1987) provides, in part: "*The Department [of Environment and Natural Resources] shall be the primary government agency responsible for the conservation, management, development and proper use of the country's environment and natural resources, specifically forest and grazing lands,*

mineral resources, including those in reservation and watershed areas, and lands of the public domain, as well as the licensing and regulation of all natural resources as may be provided for by law in order to ensure equitable sharing of the benefits derived therefrom for the welfare of the present and future generations of Filipinos." Thus, even after the passage of the LGC in 1991, the DENR retained some of its powers including forest management in forestlands which are not devolved to the LGUs, mines, and geosciences management which are not covered by the Small-Scale Mining Act, environmental impact assessment (EIA), protected area management, land management, and ecosystem research.

[23] Municipal waters include not only streams, lakes, inland bodies of water, and tidal waters within the municipality which are not included within the protected areas as defined under RA 7586 (The NIPAS Law), public forest, timber lands, forest reserves, or fishery reserves, but also marine waters included between two (2) lines drawn perpendicular to the general coastline from points where the boundary lines of the municipality touch the sea at low tide and a third line parallel with the general coastline including offshore islands and fifteen (15) kilometers from such coastline. Where two (2) municipalities are so situated on opposite shores that there is less than thirty (30) kilometers of marine waters between them, the third line shall be equally distant from opposite shore of the respective municipalities. Philippine Fisheries Code § 4(58) (1998).

[24] Batongbakal, *The Coastal Environment*, *supra* note 8, at 175.

[25] Philippine Fisheries Code § 80, 81 (1998).

[26] *See id.* § 2c (1998).

[27] *See id.* § 2f (1998).

[28] Attempts have been made in designing a national policy and legal framework for coastal management. One of the first undertakings was the National Marine Policy. The Policy adopts the archipelagic nature of the Philippines in development, planning, implementation of United Nations Convention on Law of the Sea, and all maritime and coastal concerns. In order to oversee the administration of the National Marine Policy, the Cabinet Committee on Marine and Ocean Affairs was established by virtue of a number of Executive Orders (Executive Order No. 738, E.O. No. 328, E.O. No. 186, and E.O No. 132). The Cabinet Committee was first established by President Marcos by virtue of Executive Order No. 738 dated 3 October 1981 entitled "Establishing Cabinet Committee on the Treaty on the Law of the Sea (CABCOM-LOS)." In 1988, President Aquino issued Executive Order No. 328 to reconstitute the CABCOM-LOS and increased its membership from 6 to 12. In 1994, President Ramos expanded under EO 186 the coverage of the CABCOM-LOS and renamed it as the Cabinet Committee on Maritime and Ocean Affairs (CABCOM-MOA). Finally, President Estrada issued EO 132 to strengthen the mandate of CABCOM-MOA. At http://

www.dfa.gov.ph/maritime/cabcom.html.

[29] Secretary Heherson Alvarez, Keynote Address at the National Conference *"Sailing Toward Rio +10: For a Stronger Philippine Role in Shaping International Marine Environmental Policy"* (July 26, 2002) (transcript available in the Philippine Center for Marine Affairs, Inc.). The Coastal and Marine Management Office (CMMO) of the DENR was established through DENR Administrative Order No. 08, s. 2002. Sec. Alvarez further disclosed that this office builds on the CEP and creates an interim administrative arrangement to ensure the efficiency and effectiveness of the DENR in the delivery of services for coastal management, pending the approval of congressional initiatives to strengthen the country's management systems.

[30] Philippine Fisheries Code § 16 (1998).

[31] Local Government Code § 17 (1991).

[32] Batongbakal, *The Coastal Environment, supra* note 8, at 173-174.

[33] *id.* at 174.

[34] Leila Sievanen, The Implications of Decentralization for ICM (this issue).

[35] Department of Environment and Natural Resources, et al., Philippine Coastal Management Guidebook Series No. 8: Coastal Law Enforcement 3 (2001). [hereinafter Guidebook Series No. 8]

[36] Batongbakal, *The Coastal Environment, supra* note 8, at 176; Tolentino, *supra* note 9, at 699.

[37] Guidebook Series No. 8, *supra* note 35, at 12.

[38] *See e.g. id.*, at 4.

[39] *id.* at 18.

[40] *id.* tbl. 5.

[41] *id.* tbl. 6, at 20.

[42] *id.* at 18.

[43] *id.* tbl.4, at 17.

[44] Robert S. Pomeroy, Enrique G. Oracion, Demberge A. Caballes & Richard Pollnac, Economic Benefits and Integrated Coastal Management Sustainability (in this issue).

[45] Revised Forestry Code (1975).

[46] Bradley B. Walters, *People, Policies and Resources: Mangrove Restoration and Conservation in the Bais Bay Basin, Negros Oriental and Wider Philippine Context* 159 (undated) (unpublished, on file with Silliman University Marine Laboratory).

[47] *id.* These stewardship contracts are actually 25-year renewable leases of a certain mangrove area.

[48] Under such legal premises, several acts are not allowed: the granting of mangrove timber license and/or permit, commercial cutting and/or debarking of mangrove trees in areas outside FLA areas and mangrove plantations. Implicitly, what may be allowed is the granting of license or permit for non-

commercial cutting or debarking of mangrove trees inside FLA areas and mangrove plantations.

[49] Republic Act 7161 § 71 provides: Charges on Firewood, Branches and Other Recoverable Wood Wastes of Timber. – Except for all mangrove species whose cutting shall be banned, there shall be collected forest charges on each cubic meter of firewood cut in forestland, branches and other recoverable wood wastes of timber, such as timber ends, tops and stumps, when used as raw materials for the manufacture of finished products, Ten Pesos (P 10.00)." [emphasis added]

[50] Magnus Torell, *Preface to* LA VIÑA, ICLARM Working Paper, *supra* note 15, at vii.

[51] *id.*

[52] This *sandbar* is a thin spit of land that is submerged at high tide at the mouth of North Bais Bay. It is believed to have touristic potential owing to the stilted guesthouses which were built on it by the Municipality of Manjuyod.

[53] From 1981 to 2001, there were nine (9) environment-related cases filed in the Municipal Circuit Trial Court of Mabini-Tingloy. Among the 9, three (3) of these were cases for violation of Section 33 of PD 704 (2 were dismissed for lack of evidence and 1 case was archived), one (1) case was filed for violation of FAO 163, s. 1986 (accused was found guilty of muro-ami), four (4) cases for violation of Section 6, Municipal Ordinance 03-2000 (22 accused in one case voluntarily entered plea of guilty for commercial fishing and sentenced to fine of P1,000 each while 3 cases are still on-going), and one (1) case for violation of Municipal Ordinance No. 08-90, s. 1990 (criminal complaint was filed against accused for spearfishing using SCUBA). Interestingly, there were no cases filed for violation of the controversial Ordinance (11-91, as amended).

[54] Court records show that from 1981 to 2001, three (3) criminal cases were filed relating to Section 68 of PD 705 penalizing any person who cuts, gathers, collects, or removes timber or other forest products without license. In one case, accused was found guilty and penalized with 1 year imprisonment and fine of P13,000 with subsidiary imprisonment. One case was dismissed while in another case, the accused pleaded guilty to a lesser offense of unjust vexation and fined for only P20.00.

[55] Tolentino, *supra* note 9, at 705.

[56] Batongbakal, *The Coastal Environment*, *supra* note 8, at 178.

[57] *id.*

[58] Local Government Code § 43(a) (1991).

[59] Antonio A. Oposa, Jr., *Legal Marketing of Environmental Law*, 6 Duke J. Comp. & Int'L. L. 273 (1996).

[60] Antonio G. M. La Viña, *The Right to a Balanced and Healthful Ecology: The Odyssey of a C8onstitutional Policy*, 69 PHIL. L.J. 154 (1994). [hereinafter La

Viña, *The Right to a Balanced and Healthful Ecology*]. According to this author, a "command-and-control" strategy connotes that of a superior body – the State laying down specific standards that all must follow, monitoring compliance with such standards, and enforcing such compliance by coercive and other measures.

[61] Jon G. Sutinen & K. Kuperan, *A Socio-economic Theory of Regulatory Compliance*, 26(1/2/3) International Journal of Social Economics 174-193 (1999). [hereinafter Sutinen & Kuperan, *A Socio-economic Theory*]

[62] K. Kuperan and Jon G. Sutinen, *Blue Water Crime: Deterrence, Legitimacy, and Compliance in Fisheries*, 32(2) Law & Soc'y. Rev. 312 (1998).

[63] Free riders are defined as people who persist in not investing substantial proportions of their resources into public goods when conditions designed to maximize free riding are present.

[64] Jon G. Sutinen, *Morality and Fairness, Their Role in Fishery Regulation*, 26(1/2/3) International Journal of Social Economics 8 (1992).

[65] Svein Jentoft, *Legitimacy and disappointment in fisheries management*, 24 Marine Policy 142 (2000).

[66] *id.*

[67] Biliana Cicin-Sain & Robert Knetch, Integrated Coastal and Ocean Management 320 (1998).

[68] Barbara A. Vestal, *Dueling with Boat Oars, Dragging Through Mooring Lines: Time for More Formal Resolution of Use Conflicts in States' Coastal Waters?*, 4 Ocean and Coastal L.J. 16 (1999).

[69] Jay L. Batongbakal, *A Proposed Framework for Local Marine Environmental Protection in the Philippines*, 72 Phil. L.J. 92 (1997).

[70] Local Government Code § 484(a) (1991).

[71] *See id.* § 485(b)(4) (1991).

[72] *See id.* § 485(b)(2) (1991).

[73] According to the LGC, the powers and responsibilities of the provincial government include: (1) the exercise of supervisory authority over component cities and municipalities of the province to ensure that their acts are within the scope of their prescribed powers and functions; (2) adopt adequate measures to safeguard and conserve land, mineral, marine, forest and other resources of the province in coordination with component cities and municipalities; (3) in the same manner as that exercised by its component municipalities and cities, exercise protective and enforcement measures; and (4) the provincial legislative council, Sangguniang Panlalawigan, can adopt measure and safeguards against pollution. *See id.* § 459-468 (1991).

[74] Secretary Heherson Alvarez, Keynote Message at the Philippine Provincial Coastal Resource Management Festival: *"Provincial Governance Moving Ahead in Coastal Resource Management"* 12 (February 20, 2002) (transcript available in the Coastal and Marine Management Office).

[75] Florendo B. Barangan, Presentation at the Philippine Provincial Coastal Resource Management Festival: *"Provincial Governance Moving Ahead in Coastal Resource Management"* 19 (February 20, 2002) (transcript available in the Coastal and Marine Management Office).

[76] M. Mikhail Lee L. Maxino, Manuel R. Arbon, & Rose-Liza V. Eisma, *Policy and Legal Framework in Coastal Resource Management: A Commentary*, 1(1) Siliman L.J. 98 (1998).

[77] La Viña, *The Right to a Balanced and Healthful Ecology*, *supra* note 43, at 154.

[78] Antonio A. Oposa Jr., *Law Begins with Desire: The Role of the Law in Environmental Protection*, 1(1) Silliman L. J. 16 (1988).

APPENDIX 1. MUNICIPAL ORDINANCE NO. 11-91 OF MABINI, BATANGAS

Republika ng Pilipinas
Lalawigan ng Batangas
Bayan ng Mabini
-oOo-
TANGGAPAN NG SANGGUNIANG BAYAN

HALAW SA KATITIKAN NG NAKARAANG KARANIWANG PAGPUPULONG NG SANGGUNIANG BAYAN NG MABINI, BATANGAS NA GINANAP SA BULWAGANG PULUNGAN NOONG IKA-16 NG OKTUBRE 1991 GANAP NA IKA-10:30 NG UMAGA

MGA DUMALO:

Kgg. Ruben R. Amurao,	Punong Bayan
Kgg. Vicente C. Magnaye,	Panggalawang Punong Bayan
Kgg. Herminigildo D. Jusi,	Kagawad
Kgg. Jorge H. Magmanlac,	Kagawad
Kgg. Rowell M. Sandoval,	Kagawad
Kgg. Gabriel O. Sawali,	Kagawad
Kgg. Geronimo B. Reyes,	Kagawad
Kgg. Gonzalo O. Bantugon,	Kagawad
Kgg. Aniceto O. Tatlonghari,	Kagawad
Kgg. Benjamin A. Panganiban,	Kagawad, ABC President
Kgg. Deomedes B. Panganiban,	Kagawad, PKKB Tserman
Kgg. Andres M. Maramot,	Kagawad, Agr. Labor Sector Rep.

HINDI DUMALO:

Kgd. Reynaldo M.Panopio,	Kagawad, Ind. Labor Sector Rep.

KAUTUSAN BLG. 11-91

KAUTUSANG NAGTATAKDA SA ILANG BAHAGI NG BARANGAY SAN TEODORO

AT BAGALANGIT NG BAYANG ITO BILANG SANTUARYO AT RESERBADONG LUGAR PARA SA MGA LAMANG-DAGAT.

Sa bisa ng kapangyarihang ipinagkaloob sa Sangguniang Bayan ng Mabini, ipinag-uutos na:

Seksiyon 1. Sasaklawin ng RESERBA NG DAGAT ang buong baybayin ng San Teodoro at Bagalangit at pitong daang metro palayo sa baybayin;

Seksiyon 2. Ang apat (4) na "fish sanctuaries" at ang kanilang hangganan ay ang mga sumusunod:

a. MAG-ASAWANG BATO – Sasaklawin ng sanktuaryong ito ang isang daang metro pa-hilagang kanluran ng "Punta" (isang malaking bato na matatagpuan sa hilagang kanluran ng Sitio Balanoy), tatlong daang metro pa-timog Silangan at dagdag na limang daang metro paloyo sa baybayin mula sa marka ng laki ng tubig.

b. ARTHUR'S ROCK – ang sanktuaryong ito ay magsisimula sa tapat ng bahay ni Machete hanggang sa tapat ng bahay ni Doroteo Manibo at limang daang metro palayo sa baybayin mula sa marka ng tubig.

c. WHITE SAND ROCK – ang sanktuaryong ito ay magsisimula sa tapat ng bahay ni Doroteo Manibo hanggang sa tapat ng bahayni Dr. Allan White at Limang daang metro palayo sa baybayin mula sa marka ng laki ng tubig.

d. CATHEDRAL ROCK – ang sanktuaryong ito ay pumapalibot sa Cathedral Rock na may sukat na tatlong daang metro mula sa bahay ni Ventura sa bahay ni Pementel at tatlong daang metro palayo sa baybaying mula sa marka ng laki ng tubig.

Seksiyon 3. Labag sa batas ang pangingisda o pangunguha ng kabibi, corales mula sa sanktuaryo. Subalit pinahihintulutan ang pangangalaga at panghuhuli ng semilya ng bangus at papayagan kung may pahintulot mula sa Sangguniang Bayan.

Seksiyon 4. Na ang pamamahayan ng mga lamang-dagat sa labas ng sanktuaryo subalit nasasakop ng Reserbadong lugar ay ilalaan lamang para sa makalumang pamamaraan ng pangingisda at gamit, gaya ng, pangangawil, pamamana ng manumano, paggamit ng lambat at bubo. Gayunman, ay ipinagbabawal ang paggamit ng dinamita, maging pulbura o kemikal, sodium cyanide at iba pang lason, panghuhuli ng isdang pang-acquarium, panghuhuli ng "endangered species" kagaya ng pawikan, pamamana na gumagamit ng Compressor o scuba, at panghuhuli ng sabalo.

Seksiyon 5. Bumubuo ng Lupong Tagapagpaganap (Resource Executive Committee) at mga katungkulan:

Ang lupong tagapagpaganap (REC) ang namamahala sa "Municipal Marine and Fish Sanctuary" na binubuo ng Punong Bayan bilang Tserman, dalawang iba pang pambayang opisyal; opisyal ng agrikultura' punong barangay ng San Teodoro at Bagalangit' "marine expert", mula sa Haribon Foundation at Kagawaran ng Pangingisda at Kalikasang Dagat (BFAR) bilang "consultant".

Ang Lupong Tagapagpaganap at babalangkas ng mga alituntunin/patakaran para sa epektibong pagpapatupad ng kautusan sa pahintulot ng Sangguniang Bayan at bubuo pa ring Lupong Tagapamahalang binubuo ng may-ari ng lupa; may-ari ng resort; at bangkero na itatalaga ng Tserman ng REC; pagpapatupad ng mga planong nakasaad sa kautusan.

Seksiyon 6. Sino mang lalabag sa kautusang ito ay papatawan ng penand gaya ng sumusunod:

Reserbadong Lugar:

Unang Pagakakasala – multang P500.00 o dalawang (2) linggong pagkapiit o multa at pagkabilanggo ayon sa itatadhana ng hukuman.

Ikalawang Pagkakasala – Multang P700.00 o tatlong (3) linggong pagkakapiit o multa at pagkabilanggo ayon sa itatadhana ng hukuman.

Sanktuaryo:

Unang pagkakasala – multang P500.00 o isang (1) linggong pagkapiit o multa at pagkabilanggo ayon sa itatadhana ng hukuman.

Ikalawang pagkakasala at susunod pa – multang P700.00 o dalawang (2) linggong pagkapiit o multa at pagkabilanggo ayon sa itatadhana ng hukuman.

Seksiyon 7. Ang kautusang ito ay magkakabisa 10 araw pagkatapos makapagpaskil ng sipi ng ordinansa sa "Bulletin Board" ng bayan at sa dalawang matataong lugar ng bayan.

PINATIBAY: Ika- 16 ng Oktubre, 1991.

PINATUTUNAYAN KO ang kawastuan ng kautusang nakasaad dito.

(SGD) IMELDA C. ILAGAN

Kalihim Pambayan
PATOTOO:

(SGD) RUBEN R. AMURAO
PunongBayan

APPENDIX 2. 1993 AMENDMENT TO MUNICIPAL ORDINANCE 11-91

Be it ordained by the Sangguniang Bayan of Mabini, Batangas duly assembled in session that:

Section 1. The entire shoreline and reef of 700 meters offshore of both barangays would be within the municipal marine reserve.

Section 2. The three (3) sanctuaries and its boundaries are as follows:

a. Twin Rocks – this sanctuary would run from the western boundary of Balanoy Village to about 300 meters beyond Twin Rocks and extend 500 meters offshore.
b. Arthur's Rock – this sanctuary would run in the front of the house of Mr. Machete to the front of the house of Mr. Doroteo Manibo and extend 500 meters.
c. Cathedral Rock – this sanctuary would surround cathedral rock and would run in the front of the house of Mr. Ventura to the front of the house of Mr. Pimentel and extend in the south 500 meters offshore.

Section 3. White Sand Rock will be part of the Reserve Area where other traditional fishing method is allowed. SCUBA diving/snorkeling is absolutely prohibited inside the sanctuary.

Section 4. It shall be unlawful to catch fish or to gather corals within the sanctuary. However, gathering of sea shells at a maximum of knee depth level of water is allowed inside the sanctuary from the month of May, June, July, August, September and October only.

Section 5. The marine sanctuary outside of the fish sanctuary but within the Municipal Marine Reserve is called a traditional fishing area where only traditional fishing hook and line, spear fishing without compressor/ SCUBA, use of nets, salok for catching "DULONG" and traps are allowed.

Section 6. Composition and Duties of the Executive Committee.

There shall be a Resource Executive Committee (REC) composed of the Municipal Mayor as Chairman, two (2) other municipal, municipal agricultural officer, and Barangay Captain of San Teodoro and Bagalangit, marine experts from Haribon Foundation and Bureau of Aquatic Resources who will act as consultants.

The Resource Executive Committee shall promulgate rules/guidelines for the effective implementation of this ordinance with the consent of the Sangguniang Bayan. It shall create resource management committee composed of landowners, fishermen, resort owners, and boatmen to be appointed by the Chairman of the REC, to implement management plans stipulated in the ordinance.

Section7.

1. Any person or group of persons caught/apprehended for violations of the ordinance shall be penalized as follows:

Reserve Area:

First Offense – fine of not less than P300.00 but not more than P600.00 or imprisonment of 3 to 7 days or both fine and imprisonment in the discretion of the court.

Second Offense – fine of not less than P600.00 but not more than P1,500.00 or imprisonment of 8 to 14 days or both fine and imprisonment in the discretion of the court.

Third Offense – fine of not less than P1,000.00 but not more than P2,000.00 or imprisonment of 15 to 30 days or both fine and imprisonment in the discretion of the court.

Sanctuary:

First Offense – fine of not less than P1,000.00 but not more than P1,500.00 or imprison of 31 to 60 days or both fine and imprisonment in the discretion of the court.

Second Offense – fine of not less than P1,000.00 but not more than P1,600.00 or imprisonment of not less than 61 days but not more than 120 days.

2. Vessels, watercraft/s and equipment or instrument used in the commission of the crime shall be confiscated and forfeited in favor of the government.

Section 8. Repealing Clause: The ordinances inconsistent with this ordinance are hereby repealed, modified, and amended accordingly.

Section 9. Effectivity: This ordinance shall take effect 15 days after the approval of the Sangguniang Panlalawigan and posted in the Municipality's Bulletin Board and the two (2) conspicuous places in the municipality.

APPROVED UNANIMOUSLY this 3rd day of May, 1993.

NATIONAL AND LOCAL AGENCY ROLES IN COASTAL MANAGEMENT ACTIVITIES IN THE PHILIPPINES

Kem Lowry, Alan White, and Catherine Courtney

ABSTRACT

The Philippine Local Government Code of 1991 devolves most coastal management authority to the 832 coastal municipalities. Effective devolution requires both central government and local government to address key issues of authority, capacity, management resources, commitment of management officials, how coordination will be structured, and what mechanisms will be established to insure accountability. The available evidence suggests that central and local governments officials have effectively addressed some of these issues.

Introduction

Coastal management in the Philippines has devolved from central government agencies making most resource management decisions during most of the 1900s to the current situation in which many day-to-day management decisions and some policy decisions are made by local governments and communities. The national legislation most responsible for facilitating this transition to decentralization was the Local Government Code (LGC) of 1991. The LGC effectively assigned most coastal management authority to the 832 coastal municipalities, 57 cities, and 64 provinces that have jurisdiction in coastal areas. Further, the Fisheries Code of 1998 reinforces the local role by giving local government units (LGUs) authority over municipal waters to 15 km offshore. Since 1991, LGUs have increasingly become aware of their obligations under this devolution of authority. They are currently in the process of trying to improve their capacity to effectively assume this responsibility and to manage the resources under their jurisdiction. This process of "learning by doing" has forced LGUs to learn about their legal and managerial roles in the

process of planning and implementation. This devolution has also opened opportunities for the private sector through non-government organizations (NGOs) and businesses (such as tourism) to play a larger role in the coastal management process at the local level. The main question that remains to be answered is whether this new, more decentralized system is more effective than the previous management system. This paper identifies some of these institutional and policy issues shaping coastal management in the Philippines.

Dilemmas in Designing a Decentralized Management System in the Philippines

Theory and experience suggest that in designing a decentralized management system several key questions have to be addressed (see, e.g. Cohen and Peterson, 1999; Lowry, 2001; May and Burby, 1996; Ribot, 1999; Turner and Hulme, 1997).

- What management authority has been decentralized? Is authority adequate to engage in effective management? What management authority has been retained at the national level and in what agencies?
- Do LGUs have sufficient capacity to manage effectively? Are there capacity 'deficits'? What arrangements have been made to identify and address management capacity issues? How effective are they?
- What resources (personnel, equipment, etc.) are required for effective LGU management? Are LGU resources sufficient? What is being done by national agencies to address resource issues?
- How committed are local officials to effective management? How committed are national officials? What, if anything, has been done to induce or coerce commitment? How effective are these measures? How much political support is there for effective management? How is it changing over time?

- What mechanisms have been established to coordinate management activities among levels of government? To share information? To resolve conflicts? How effective are they?
- To whom are LGU officials accountable? National officials? What mechanisms for accountability have been established? How effective are they?

The legal authority to engage in management, the technical skills and management resources possessed by implementing officials, as well as their understanding of and commitment to coastal management objectives and strategies are among the critical variables that shape the effectiveness and sustainability of coastal management efforts in the Philippines. It is evident that authority, capacity, and commitment vary among local jurisdictions and between national and local jurisdictions nationwide.

Management Authority

Effective management requires that agencies have sufficient authority to engage in all the developmental, regulatory, revenue generating, and other activities associated with effective coastal management (Sabatier and Mazmanian, 1983; May, 1993; May, 1996). 'Authority' as used here refers primarily to the legal authority derived from Constitutional powers, statutes, or administrative guidelines. 'Authority' is also related to political legitimacy—the degree to which citizens regard laws, guidelines, or other authoritative mandates governing coastal uses and activities as valid expressions of government power.

The Local Government Code and the 1998 Fisheries Code transfer a substantial amount of responsibility to local governments to engage in coastal management within a defined jurisdictional area of coastal lands and municipal waters to 15 km offshore. The practical question is whether LGUs also have sufficient legal authority to manage the land use and marine activities that degrade or deplete coastal resources and carry out their other and numerous management responsibilities. Given that the transfer of

responsibilities with the passing of the LGC and the Fisheries Code did not, for the most part, address the need for improved capacity and more resources, an inventory of responsibilities delegated to LGUs is useful. A partial list of coastal management activities delegated to Local Government Units is outlined in Table 1.

Table 1: Basic Coastal Management Responsibilities of LGUs

Type of Responsibility	Management Activity
Planning	§ Adopt a comprehensive land use plan § Reclassify land § Enact integrated zoning ordinance in consonance with approved comprehensive land use plan
Protection Conservation	§ Recommend to DA-BFAR the inclusion of certain parts of municipal waters as fishery reserves § Establish fisher refuge and sanctuaries in consultation with FARMCs § Undertake reclassification of lands § Undertake activities to manage: ~ Dynamite fishing and other forms of destructive fishing ~ Smuggling of natural resources products and endangered species of flora and fauna ~ Slash and burn farming ~ Activities that result in pollution. § Provide for maintenance of: ~ Communal forests and watersheds ~ Tree parks ~ Greenbelts ~ Mangroves ~ Implement other similar forest development projects subject to DENR guidelines.
Enact Legislation	§ Approve ordinances for basic services § Adopt pollution control measures § Adopt fishing ordinances in consultation with FARMC § Review ordinances enacted by municipal government § Enact a basic Municipal Fisheries Ordinance (MFO) delineating boundaries of municipal waters § Modify or amend exiting municipal fisheries ordinances to conform with Fisheries Code § Enact ordinances to manage small and medium commercial fisheries in municipal waters in the area from 10.1 and 15 km. from shoreline.

(Table 1. Cont'd)

Regulatory	§ Issue permits for fishing vessels operating in municipal waters in the area from 10.1 and 15 km. From shoreline. § Establish the boundaries for municipal fisheries § Maintain a registry of municipal fisheries § Demarcate areas for fish capture, mariculture and/or fish farming § Grant new concessions, licenses, permits, leases, and similar privileges for the establishment or operation of fish pens, fish cages, fish traps, and other structures for the culture of fish and fisher products. § Issue permits for pearl farms. § Regulate activities relative to the use of land, buildings, and structures within the municipality § Implement solid waste disposal system or environmental management system and services or facilities related to general hygiene and sanitation.
Enforcement	§ Enforce rules and regulations relating agriculture and aquaculture § Prosecute violations of the provisions of applicable fishery laws § Enforce laws and ordinances relating to pollution control and protection of the environment.
Taxation and Revenue Generation	§ Define the geographic criteria for application of LGU taxes and levies based on the location of the transaction or the operation of the branch, outlet or office. § Formulate special levies on real property and the procedures for allocating the proceeds. § Create special funds or special funds of the general fund
Extension/ Technical Assistance	§ Provide extension and on-site research services and facilities related to agriculture and fishery activities § Provide support to municipal fishers through appropriate technology and research, credit, production and marketing assistance and other services
Intergovernmental Relations	§ Intergovernmental Relations § Formulate with other LGUs having jurisdiction over municipalities bordering bays, lakes, and gulfs, a unified MFO for integrated resource management.
Relations with POs and NGOs	§ promote the establishment and operation of Pos and NGOs§ § enter into joint ventures and such other cooperative arrangements with POs and NGOs § Enact appropriate ordinances in consultation with FARMC and in accordance with the National Fisheries Policy § Consult FARMCs in the enactment of municipal fisheries

Source: Department of Environment and Natural Resources, et al. 2001. *Philippine Coastal Guidebook No. 2: Legal and Jurisdictional Framework for Coastal Management,* Table 10.

As this partial list of local government coastal management activities makes clear, the bulk of management responsibility—and authority—has been delegated to LGUs.

At the national level, the two principal agencies with coastal management responsibilities are the Department of Environment and Natural Resource (DENR) and the Department of Agriculture—Bureau of Fisheries and Aquatic Resources (DA-BFAR). As Table 2 indicates these two agencies have retained authority over some land and water uses, management activities, and specific geographic areas and that there is some overlap of responsibilities between the two agencies

Table 2: Coastal Management Responsibilities of DENR and DA-BFAR

Type of Responsibility	Management Activit
Planning	§ Philippine Fisheries Code of 1998 mandates DA-BFAR to prepare and implement a Comprehensive National Fisheries Industry Development Plan
Regulation	§ DA-BFAR issues licenses for the operation of commercial fishing vessels § DA-BFAR is mandated to enforce all laws; formulate and enforce all rules and regulations governing the conservation and management of fishery resources, except in municipal waters; and settle of conflicts of resource use and allocation in consultation with the national FARMC, LGUs and local FARMCs. § DA-BFAR regulates conversion of mangroves to aquaculture § DENR regulates small size mining and quarrying § DENR issues leases foreshore areas § DENR regulates cutting of mangroves § DENR administers the Environmental Compliance Certificate

(Table 2. Cont'd)

Coordination and Consultation	§ Philippine Fisheries Code of 1998 instructs DA-BFAR to coordinate with LGUs, FARMCs and other government agencies in the development, conservation, protection, utilization and management of fisheries of fisheries and aquatic resources. § Philippine Fisheries Code of 1998 instructs DA-BFAR to coordinate with LGUs in the establishment of catch ceiling and/or closed season that includes municipal waters.
Research/Training	§ DA-BFAR is mandated to formulate and implement a Comprehensive Fishery Research and Development Plan § DA-BFAR is mandated to recommend measures for the protection/ enhancement of the fishery industries. § DA-BFAR is mandated to assist the LGUs in developing their technical capability in the development, management, regulation, conservation, and protection of fishery resources.

Source: Department of Environment and Natural Resources, et al. 2001. *Philippine Coastal Guidebook No. 2: Legal and Jurisdictional Framework for Coastal Management.*

Problems with the Existing Distribution of Management Authority

Analysis of the existing distribution of coastal management authority among national, provincial, and local units of government suggests several issues to be resolved:

Lack of clarity about the scope of authority. Surveys conducted in 1996 and 2000 suggest that LGU staff are unclear about what their responsibilities really mean and how to go about fulfilling them (DENR, *National Policy*, 28). This lack of clarity is due to several factors: a) many LGU personnel are not well versed on the existing laws affecting coastal management; b) many personnel are not knowledgeable about what constitutes coastal management even when they were fully aware of the legal responsibilities implied; and c) in some cases the legal statements lack clarity and have implementing rules that are not easy to follow.

Several major jurisdictional gaps and conflicts inhibit effective coastal management. First, DA-BFAR has not found effective strategies for managing fisheries through LGUs in ways that

minimize continued over-fishing. DA-BFAR lacks the capacity to assist LGUs in their fisheries management planning activities. Second, there is continuing confusion over who has control over National Integrated Protected Areas (NIPAS) in coastal sites when they are declared for areas covering more than one local government unit (White, Salamanca, and Courtney, 2002). Third, there is confusion among the DA-BFAR and the DENR staff over how to resolve conflicts over conversion and restoration of shoreline areas under Fishpond Lease Agreements. Finally, there is uncertainty about how to manage foreshore areas. While the DENR has shared legal authority with LGUs, it has not found effective ways to involve LGUs in foreshore management.

A number of initiatives have been made to clarify the legal mandate of LGUs in coastal management. Several publications such as the "Philippine Coastal Management Guidebook Series" have been completed and disseminated to LGUs. These publications provide guidance to LGUs in how to carry out their ICM responsibilities. Second, the League of Municipalities has provided several national venues for workshops on the coastal management that have involved many of the municipal mayors and their staff. Third, most new significant laws such as the Fisheries Code have been made public through newspapers, radio, publications, and various forums. Finally, ICM training has been conducted in all project areas of CRMP, the Fisheries Resource Management Project (FRMP), and several other foreign-supported national projects.

Inconsistency and conflict between plans, programs, and legislation within and between local and national governmen(DENR, *National Policy*, 29). The DENR, for example, has to balance conflicting responsibilities. The DENR is the national agency responsible for the "exploration, development, management, and conservation of the Philippines' forest, mineral, land, water, fisheries, wildlife, and other natural resources" (DENR, *National Policy*, 31). With this broad mandate, balancing exploration and development of natural resources with conservation

and management is difficult and numerous opportunities arise for conflicting policies and programs that affect coastal resources at the local level. Although the potential for conflict of interest exists within the mandate of the DENR, it is not so much a problem for coastal management as it is possibly in the forestry sector. However, the potential conflict of interest for the management of fisheries by the DA-BFAR is much greater because of the mandate of the DA-BFAR to ensure increasing fish production in spite of a significant nationwide declines in fisheries.

Some initiatives have been taken to reconcile conflicting mandates in the DENR and DA-BFAR. A series of workshops involving staff of the two agencies in 1998 and 1999 resulted in a joint memorandum that clarifies roles of the two agencies with respect to the Fisheries Code of 1998. Although this memorandum is a start, the new National Coastal Management Policy would, if adopted, provide much more opportunity to clarify roles of the two agencies as well as roles in relation to other national agencies and local government.

Lack of enforcement. Enforcement is a continuing issue. According to the DENR, "enough laws have been written to manage our resources, but enforcement is extremely weak. There are a number of reasons for this: the slow justice system, the system of 'incentives' that encourage people to break the law, lack of trained coastal law enforcement units and patrol assets" (DENR *Legal and Jurisdictional Framework).* Enforcement is hampered by a number of administrative factors. Lack of knowledge of coastal management on the part of enforcement staff is one key issue. Most enforcement officers are not well versed in the issues and procedures of coastal management. In addition, the size of the areas that requires patrolling is well beyond the capacity of LGU or national police officers to cover effectively.

Management Capacity

One of the most frequently cited reasons for not implementing policies through subordinate units of government at provincial and

local levels is that they lack the 'capacity' to carry out the required tasks (Cohen and Peterson, 1999; Lowry, 2001; Turner and Hulme, 1997). Capacity, as used in this context, usually refers to technical capacity. If implementing a policy or plan requires a particular technical skill, the organization will need personnel with that skill or the means to train people to develop it, providing that training is the narrowest and most obvious meaning of capacity building.

Technical capacity—and the personnel training and education required to develop it—is just one dimension of local capacity. A second important dimension is organizational strengthening. Organizational strengthening refers to strategies to alter management systems in ways that improve performance of specific tasks. Strategies for strengthening organizations include "improving recruitment and utilization of staff, introducing better management practices, restructuring work and authority relationships, improving information and communication flows, upgrading physical resources, introducing better management practices, and decentralizing and opening decision-making processes" (Grindle, 1997).

A third dimension of capacity building is institutional reform. Institutional reform means altering the rules by which organizations make decisions and carry out activities (Grindle, 1997). Institutional reform may include legal reform or development of new accountability systems. In natural resource management, a greater emphasis on collective self-management by users groups and the development of locally developed 'rules' to govern resource users are an example of institutional reform.

In the Philippines, most of the capacity building work focuses on technical capacity. National agencies, donor projects (such as CRMP), academic institutions (such as Silliman University), and NGOs have organized and run training programs for LGU staff focusing on key coastal management issues, management frameworks, and specific skills.

Issues in current capacity building efforts

In spite of substantial capacity-building efforts, particularly by donor agencies, academic institutions, and NGOs, a variety of capacity building problems persist:

Technical capacity building by national agencies is understaffed and under-funded. Realignment of DENR functions toward assisting local government implement environmental management systems has not been realized nationwide. Instead, training and technical assistance is provided in selected barangays through DENR's understaffed and under-funded Coastal Environment Program (DENR *Proposed National Policy*, 31). This chronic problem will not go away soon given the tremendous job to be done in assisting LGUs to implement CRM. This is probably why the extent of donor assistance in this capacity building effort through the DENR and the DA-BFAR is so large. While the difference between the need for capacity building and the ability of national agencies to provide needed assistance is substantial, some progress has been made (Courtney, White, and Deguit, 2002). Local Government Units are beginning to recognize the value of coastal management interventions as evidenced by increased budget allocations for CRM and implementation of local marine protected areas and other coastal resource management best practices. As one CRMP official put it, "We have provided them with many trainings—it's not only training but also financing them from resource management to planning to adoption of plans to monitoring and evaluation. It's really implementation where they are helped in this area, but they still need more assistance" (interview with E. Deguit, June 7, 2002).

Uncertainty administrative practices required for effective management. The relative newness of coastal management has created some uncertainty at all government levels about how to integrate new management practices into existing management regimes most effectively. This is particularly true for fisheries management which has always been quite isolated and not well integrated in coastal resources management. This is also

true for the need to integrate shoreline management for building pollution control and other development activities into the coastal management framework.

A number of efforts are being made to align the missions and administrative procedures among key national agencies. The Protected Area Management Boards (PAMB) of national protected areas are usually comprised of representatives of these different government bodies plus the private sector stakeholders. The joint memorandum order on the implementation of the Fisheries Code between the DENR and the DA-BFAR is a start at the national level. The Philippine Fisheries Code of 1998 provided for the creation of FARMCs (Fisheries and Aquatic Management Council) to act as consultative bodies of the LGUs in determining priorities on fishing activities of municipal fisherfolk and related activities. They also assist LGUs in the preparation of the Municipal Fishery Development Plans, recommend fishery ordinances, and assist in the enforcement of fishery laws. The DA-BFAR, LGU, and CRMP have worked together in establishing and strengthening the capacity of FARMCs to fulfill their role in CRM (Ablong, 2000, 3).

Lack of political will to implement an effective management system. Effective management requires an administrative culture in which it is possible to deny projects or prohibit activities that benefit a few but will result in current or future adverse impacts that threaten the sustainable use of coastal resources. Such a system requires both professional analysts and political support for 'good' management both within the organization and in the community. The history of saying no to development projects that benefit only a few has been very weak in the Philippines. Nevertheless, in recent years, there are several precedent setting cases in which large projects have been denied permits to continue because of political opposition. In contrast, many smaller scale projects were not properly screened and were allowed to proceed although these did not meet environmental standards. Too frequently,

key stakeholders are not well informed about the potential consequences of particular projects.

Changes in political leadership have sometimes shaped political commitment. The commitment of an LGU to implement ICM will vary from one administration to another. The implementation of some programs is related to the priority concerns in the development agenda of local government. If the new leadership does not consider CRM a priority, it will be difficult to sustain previous programs and initiatives (Indab, 2002).

Resources for Management

One obvious dimension of local 'capacity' that deserves particular mention is the adequacy of resources for local management (Cohen and Peterson, 1999; Lowry, 2001; Sabatier and Mazmanian, 1983). Given the new coastal management responsibilities under the Local Government Code and the Fisheries Act, local officials need the funds to hire new skilled personnel and train existing staff, hire consultants, and purchase or lease computers and software. They also need access to vehicles and boats for site inspections. Some management initiatives, such as improved means of domestic waste disposal, also require capital expenditures by local governments.

Under the new Local Government Code, LGUs have fiscal autonomy. LGU sources of revenue include: taxes, fees, and charges; a share of national taxes; a share of national wealth; grants and donations; domestic loans; credit financing schemes; investment income from development enterprises; and inter-government cooperation (DENR, *Legal and Jurisdictional Framework*, 38). While LGUs may impose taxes or fees for the use of municipal waters, the principal local revenue source is the share of internal revenue from the national government. Local governments are constitutionally entitled to 40% of all internal revenue taxes (DENR, *Legal and Jurisdictional Framework* 38). In practice, the LGU share is small. In a 1997 survey of coastal mayors, 80% identified lack of technical expertise and

75% identified inadequate funding for coastal management as key constraints (DENR, *Proposed National Policy*, 28). Another common factor intertwined with the problem of resources for management is that LGU staff do not know how to effectively utilize existing resources or know enough about the process of coastal management to prioritize the needed management activities.

Issues in generating resources for CRM

Developing adequate resources for local coastal management requires both increased revenue streams and setting priorities.

National and local agencies lack key management equipment and trained personnel. The shortage of Philippine National Police (PNP) patrol boats is just one example of the general shortage of equipment and other management resources. This example highlights the need for LGU planning and intervention. Anywhere in the country where there is some effective enforcement, it is because the LGU has provided a boat, crew, fuel, and then asked the PNP to assist. The PNP do not often provide the initial impetus for coastal law enforcement except maybe in urban hotspots or national priority sites.

Many LGUs lack a revenue generating strategy for coastal management. LGUs could augment national tax revenues by other revenue sources such as taxes and fees. The most promising sources of revenue through LGUs are user fees for entrance to protected areas declared through local governments, fishing licenses, permits for almost any use of marine waters, or shoreline areas related to fisheries and tourism. Many local governments have revised their revenue codes in accordance with provisions of the Local Government Code. Some have increased tax rates, fees, and charges. With increased rates and increased IRA shares, their revenues have generally increased. However, the costs of devolved services have also increased. As a result a number of local governments have incurred deficits (Legaspi, 2001, 22). It is not clear to what extent LGUs are using revenues

derived from coastal use fees and licenses for the maintenance of the resource base (i.e. coral reefs, marine protected areas, etc.).

Most LGUs have not set resource acquisition priorities. Local coastal management is likely to require some new personnel and equipment. Most local governments have not identified resource acquisition priorities. This is most often because either the LGU does not value CRM as a need or if it does, it does not know how to begin or what kind of personnel are needed to make it work.

Developing Commitment

Research focusing on factors affecting the implementation of plans and programs has consistently identified the commitment of implementing officials as a key factor in determining successful implementation (Lowry, 2001; May, 1993, 1995; Sabatier and Mazmanian, 1983). Research also indicates that acquiring and maintaining commitment from lower level officials in a decentralized system is a continuing challenge. Reflecting on this analysis of efforts to decentralize in Florida, New South Wales, and New Zealand, May and Burby report that variability in local government efforts to either manage development in hazard prone areas or otherwise address risks posed by natural hazards is "a serious problem that results in half-hearted efforts and, in some instances, outright failure to comply with higher level mandates. In either case, lack of such commitment serves as a key obstacle to achieving sustainability with respect to natural hazards" (May and Burby, 1996).

Of course, what is perceived as 'lack of commitment' by central government authorities may be viewed by some local officials as strategic political resistance. Political resistance accounts for some of the variability in responses by local officials to central government mandates. Local political resistance has several possible sources. One is bureaucratic. Local administrators may not understand the need for programs mandated by central government or, to the extent that they understand them, may assign them lower priority relative to other local government activities

(Sabatier and Mazmanian, 1983). Getting local government assistance in enforcing coastal building setback requirements is a continuing problem in some countries in part because some local officials regard coastal erosion resulting from improperly located coastal structures to be a minor problem unrelated to coastal regulation (May,1995). (In the Philippines, resistance to more rigorous foreshore management more often comes from the DENR which has a continuing interest in generating revenues from foreshore leases held by the national government).

A second source of resistance of local officials is the stringency of management mechanisms they are expected to impose. Local government officials may recognize the need for improved management of fisheries, for example, but object to administering a permit system or other regulatory program that imposes significant restrictions on local fishers. Finally, the political influence of local resource groups or political coalitions, such as aquaculture interests, may inhibit local government officials from implementing environmental management initiatives. The authority of central government officials may not be sufficient to overcome the influence of the local coalitions.

Local commitment can be coerced or encouraged. Failure to comply with national mandates can be punished by fines, reduced funding for local implementation, national pre-emption of management authority, and a variety of other means. Encouraging local commitment occurs by a variety of means such as including local officials in planning processes, providing incentives for effective local management in the form of awards, increased local funding, or increasing the range of local authority. Philippine national laws and policies are relatively silent on both inducements for improved local (or national) management or penalties for non-compliance. It is not clear what the DENR, the DA-BFAR, and other national agencies are authorized to do to encourage good management at the local level or what practical steps they actually take. National agencies do in fact spend much effort in communicating with LGUs about national laws and what the LGUs should be doing to

implement the regulations under a particular agency. National government agencies are quite persistent in this effort but the message often falls on deaf ears unless incentives are somehow provided. Incentives may take the form of promises for training and financial support in some cases or political favors in others. Often, the practice of "*utang na loob*" creates a culture in which favors are given with the expectation that they will eventually be repaid.

Issues in developing increased commitment to better management

Several issues in creating increased commitment have been identified:

Lack of incentives to encourage improved local management. The Local Government Code and the Fisheries Act, in particular, increase the scope of local government authority without providing much in the way of inducements to assume greater responsibility. Priority funding for projects to certified LGUs would be one such incentive (DENR, *Proposed National Policy*, 49). This is the plan under the CRM Certification scheme being tested by CRMP together with DENR and DA-BFAR. This proposal would make it possible for municipalities that have completed a basic set of activities in CRM to be certified as eligible to receive patrol boats or other incentives including additional national budget.

Lack of penalties for non-compliance with coastal management mandates. There are few penalties for local non-compliance with coastal management mandates. The official penalties are spelled out in the laws affecting coastal resources. There are cases when the national government has penalized LGUs for blatantly breaking national laws affecting fisheries or other aspects of CRM, but this is rare. However, examples of improved coastal management are almost always locally driven rather than because of national government incentives.

Intergovernmental Coordination/Collaboration

Effective coastal management requires inter-governmental coordination, collaboration, and conflict resolution. This is particularly true in the Philippines where both national and local agencies share responsibility for management as is the case with fisheries. The issuance of fishpond lease agreements by the DA-BFAR without adequate consultation with LGUs is a case in point (DENR, *Proposed National Policy,* 32).

Several important initiatives have been undertaken to coordinate activities of national agencies. First, the DENR's establishment of the Coastal and Marine Office (CMMO) as the national coordinating office for all coastal and marine activities is a potentially important initiative. The CMMO is seen as a means for the DENR to assume more leadership and support for the LGUs. Second, the Fisheries Code of 1998 consolidated parts of many pertinent national laws into a single law that addresses fishing and the protection of aquatic ecology. The law "reconfirms that municipal and city governments 'shall be responsible for the management, conservation, development, protection, utilization and disposition of all fish and fishery/aquatic resources within their respective municipal waters'," but leaves some aspects of the mandate to local governments unclear (DENR, *National Policy*, 34).

Third, the DENR and the DA-BFAR "signed a Joint Memorandum Order in mid-2000 that clarifies their respective authorities and jurisdictions over the management of fisheries and aquatic resources and requires the two departments to coordinate the implementation of the Fisheries Code" (DENR, *National Policy,* 34).

Finally, the "Medium Term Development Plan" (MTDP), under the jurisdiction of the National Economic Development Authority, provides a national results framework for improving CRM. The MTDP goals and objectives for coastal and marine resources target 250 LGUs along the 6,000 km of shoreline adopting integrated coastal management for the improved

management of municipal waters by the year 2004 (DENR, *National Policy* 34). However, the national government has not established guidelines for reporting results. The MDTP might also be used to coordinate national and local policies and programs.

Other national councils, committees, and task forces have the potential for contributing to greater coordination, but their effectiveness is uncertain. In fact, the Cabinet Committee on Marine and Ocean Affairs was recently abolished because of inactivity.

Issues in coordination, collaboration, and conflict resolution

Improved coordination and collaboration requires addressing several issues.

Overlaps and gaps in management authority. Overlapping authority, such as in the regulation of fishponds creates uncertainty. From a national perspective, the big gaps are: the almost total lack of implementation of the EIA and pollution laws; the substantial failure of efforts to protect mangrove ecosystems; and, the lack of control in foreshore areas under the jurisdiction of the DENR. These are all DENR laws but all have a LGU component and thus show a lack of coordination between the DENR and the LGUs. On the fisheries side the almost complete lack of control of commercial fishing within municipal waters is a major gap that is mostly under the mandate of LGUs with assistance from the DA-BFAR. In addition, the links between over-fishing, fishing effort, fishing areas, and fisheries management plans are not being made in a concerted effort that involves the LGUs, the DA-BFAR, and the DENR.

Lack of recognized intergovernmental consultation, collaboration, and review procedures. While the national agencies have transferred a substantial amount of legal authority and management responsibility to LGUs, relatively little has been done to develop new organizational mechanisms to assist local government, to provide inter-governmental coordination mechanisms, or to establish procedures for reviewing local governmental management activities. "Personnel from key national

government agencies are located throughout all administrative and governance levels including national, regional, provincial, municipal, and barangay. The degree to which these agencies and their personnel interface and collaborate on CRM-related functions, however, is minimal with most of their functions carried out independently of each other" (DENR, *Proposed National Policy*, 33). The extent to which these groups interact to plan and implement ICM varies considerably from site to site around the country. In fact, there is a quite good collaboration in some areas where planning has been organized and facilitated by a body such as CRMP or another government project that sees the need to have all the stakeholders at the table. The types and frequency of coordination depend on many local and variable factors. Regional and provincial offices are important in facilitating coordination since they are often responsible for convening, planning, and implementing bodies for particular project areas.

Creating Accountability Systems

Reallocating authority and responsibility from central government departments to LGUs carries with it the assumption that those to whom responsibility is transferred will somehow be held accountable for their administrative actions (Agrawal and Ribot, 2000; Lowry, 2001). Hence, in its narrowest conception, accountability refers to procedures for officials in central government to scrutinize the management activities of local authorities. This concept of accountability also connotes that 'errors' or instances of 'non-compliance' by local officials will be identified and 'remedied' in some fashion.

Designing procedures for assessing administrative accountability requires answering several questions:

- For what activities/decisions or behaviors will local authorities be held accountable?

- What information about program milestones, program

activities, or coastal conditions is needed?

- What procedures are required for gathering, storing, and retrieving monitoring information (Olsen, et al., 46)?

- How will judgments be made about the appropriateness of administrative behavior?

- How will instances of non-compliance or inappropriate subordinate behavior be addressed?

Designing systems for administrative and fiscal accountability poses a number of practical and political dilemmas. Beyond the sometimes difficult practical questions of how to provide for continual monitoring of local agencies, there are political issues as well. Administrative monitoring is often seen by subordinate agencies as a labor intensive and intrusive process that does not adequately gauge either the level of effort or the quality of what they do. The indicators of effectiveness used by central government agencies are often regarded as invalid, incomplete, or irrelevant by local officials. Questions about the validity of an accountability process can turn to a more general critique of the legitimacy of central government scrutiny—and local government resistance to continued scrutiny by central government officials.

While administrative accountability is important, most contemporary observers regard it as just one dimension of a more inclusive system of accountability (Agrawal and Ribot, 2000; Turner and Hulme, 1997). Beyond formal legal conceptions of accountability, public officials, non-government organizations, community user groups, and others with authority to implement environmental programs generally and coastal management programs in particular should also be held accountable. This suggests a broader conception of political accountability. But to whom should implementing officials be accountable? And what are the means of achieving such accountability?

The most obvious form of political accountability is scrutiny by elected officials at all levels. Legislative bodies hold hearings, review reports, and consider new legislation. Legislative forums are an opportunity to identify problems, including those related to intergovernmental structures or processes. The notion of political accountability is based on the assumption that administrative officials are responsible not just to elected and appointed officials but to the multitude of stakeholders whose lives are affected by the implementation of environmental programs. A broader conception of political accountability raises several questions:

- How open are the agency planning and decision making processes?

- What opportunities for community or interest group participation does the agency offer?

- How much authority does the agency share?

Transparency of agency planning and management activities is one obvious dimension of political accountability. Many agencies hold occasional public hearings and publish annual reports that provide a limited basis for public scrutiny. Others publish newsletters, establish procedures for assessing information systems, make maps readily available, and maintain sophisticated websites that provide detailed information about what the agency is doing.

Although there is no formal system for LGU compliance, the CRMP together with national government agencies, local government units, NGOs, and academic partners is developing a CRM certification process to assess the progress of individual LGUs in developing coastal management programs. As conceived by a multi-institutional working group, "certification is a voluntary process in which an independent third party provides a written certificate showing that a product, method, or service satisfies

certain predetermined requirements or criteria" (DENR, *Coastal Resource Management Planning*, 85). The proposed certification process identified benchmarks for three levels of accomplishment in CRM: beginning (1-3 years), intermediate (3-5 years), and advanced (5 or more years). The benchmarks are the key to self-assessment. For the beginning level, for example, the benchmarks include:

- Commitment to CRM as a basic service
- Budget allocated
- FARMC or other multi-sectoral organization formed
- CRM plan drafted
- Best CRM practices planned and initiated
- Background information for CRM consolidated and analyzed
- Issues identified and prioritized
- Coastal environmental profile complete with map and baseline data (DENR, *Coastal Resource Management Planning,* 87)

In the proposed CRM certification process, a provincial committee would review individual programs and recommend certification to a national or regional committee that would issue the certificate (DENR, *Coastal Resource Management Planning,* 86).

The proposed certification process makes LGUs accountable for explicit planning and management processes (e.g. local issue identification) and outputs (e.g. maps, CRM plan). Having specific benchmarks for different levels of program maturity also clarifies 'next steps' for local officials uncertain about how coastal programs should evolve. An additional advantage is that it makes it possible to provide

provincial or national recognition to LGUs making good progress and to reward them with additional funds.

In addition to the LGU certification, the proposed national resource management policy for the Philippines proposes a one time 'institutional audit' of national agencies. These 'institutional audits' are a form of accountability assessment. As proposed, the audit "identifies the agency's activities policies and procedures (including all departmental administrative orders, implementing rules and regulations, joint memoranda, and executive orders) that are consistent (or inconsistent) with the agency's mission statement and with ecosystem-based and integrated coastal management (DENR, *National Policy*, 48). A major purpose of the audit is to identify agency strengths and weaknesses in discharging coastal management responsibilities. "Any activities that are deemed to be inconsistent with the mission statement would then be altered or eliminated. Likewise, the audit would identify desired or required activities not yet initiated as well as activities or responsibilities that are in implemented sufficiently well to achieve the goals included in the mission statement" (DENR, *National Policy,* 48.

What has been proposed—LGU certification and institutional audits for national agencies—is a practical system for administrative accountability. It has the advantage of being tailored specifically for the Philippine situation.

Issues in Developing an Accountability System for Coastal Management

Uncertainty about the acceptability of the proposed system. It is not yet clear whether certification is regarded by stakeholders as an acceptable and manageable system for administrative accountability. It is now being implemented in two regions (Regions 7 and 11) and one province within region 4 (Palawan Province). A national system is being considered under the newly proposed Coastal and Marine Management Office (CMMO) in the DENR. Designing, implementing, and refining the system will take some time. LGUs are not accustomed to the

paper work, documentation, and the periodic recording of basic information that is required to make the system work. Baseline information is also essential in the process and must be collected, recorded, and updated as part of the municipal coastal database (MCD) being used by selected LGUs.

Limited scope of accountability. The proposed system focuses on patterns of administrative compliance. As useful as it is, it omits mechanisms for case-by-case review of potentially non-complying decisions or activities by LGUs or national agencies. Moreover, it conceives accountability as primarily a problem of administrative review rather as a larger political problem.

Limited means for enforcing compliance. The proposed review system provides a valuable means for detecting local planning and management processes and outputs that are not consistent with CRM 'best practices'. However, there is no legal means for forcing changes in behavior. The system relies on education and persuasion rather than on penalties.

Concluding Observations

The Philippines has embarked on an ambitious effort to design and implement a decentralized coastal management effort. The initial accomplishments are promising. Just over a decade ago a Local Government Code was enacted transferring legal authority to local governments to manage coastal uses and activities. Although there continue to be jurisdictional gaps and overlaps between national agencies, particularly between the DENR and the DA-BFAR, and between national and local government units, most of these jurisdictional issues are recognized and have been addressed in some regions. In addition, new coordination and collaboration committees have been developed at both the national and local levels. A great deal of technical assistance and training has been provided to local governments to strengthen management capacities. Regarding the generation of management revenues, local

government units have the legal authority to impose new taxes and fees, although national grants are still the primary source of local revenue.

Substantial challenges to effective institutional design and implementation remain. Nationwide there is great variation in coastal resource conditions, in the demands on those resources, and the effectiveness of local and national agency responses. Increasing the commitment of local officials to engage in effective resource management remains an enormous challenge. Much has been accomplished in building a framework for effective local coastal resource management. Much remains to be done.

Acknowledgment

Interview data provided by Professor Jojema Indab have been most helpful.

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THE IMPLICATIONS OF DECENTRALIZATION FOR INTEGRATED COASTAL MANAGEMENT SUSTAINABILITY IN THE PHILIPPINES

Leila Sievanen

ABSTRACT

In 1991, the Philippines passed the Local Government Code (LGC) which transferred many coastal management responsibilities from the Central Government to Local Government Units (LGUs). Based on a decentralization framework proposed by Cohen (1999), this paper compares two case study sites to determine the effects of two forms of decentralization on coastal management outcomes and resulting sustainability implications. Mabini-Tingloy, a popular tourist destination, is used to represent a case of "institutional pluralism" while Bais Bay is used to illustrate a case of a "distributed institutional monopoly." While decentralized approaches are often critiqued for limited resources, failure to encourage commitment of local officials, lack of coordination between groups, and low local-level technical and managerial capacity, this paper argues that a situation of institutional pluralism has the potential to better allow non-central and private sector institutions and firms to carry out task-related roles more accountably, effectively, and efficiently than governmental institutions holding monopolies over public sector tasks. In the Philippines, these institutions must have a good relationship with the LGU since LGUs have a great deal of political power in the current framework. Tasks will be carried out more accountably, effectively, and efficiently in situations with an accountable private sector, political space necessary to accomplish public sector tasks, and an expressed agenda to accomplish these tasks.

Introduction

In 1991 the Local Government Code (LGC) transferred a great deal of coastal management authority to the Philippines' Local Government Units (LGUs). This transfer of power from central government agencies to local agencies, also known as 'decentralization,' is a dynamic process that can take many different forms (Lowry 2001). There are three conventional

decentralization strategies: deconcentration, delegation, and devolution. Deconcentration takes place when some personnel and resources are transferred from central government ministries to sub-national units of the same ministry; delegation involves a transfer of responsibility to sub-national agencies or authorities accountable to the central government; and devolution is the transfer of resources and responsibilities to local government units. The Philippines has adopted a devolution process involving the retention of some powers by the central government. The LGC devolved many responsibilities and resources to local governments at the provincial, city, municipal, and barangay levels including increased taxation powers, a share in national revenues through internal revenue allotments (IRAs), and the authority to enact and enforce policies concerning issues of coastal management. This devolution has also allowed the private sector to play a larger role in the coastal management process at the local level through non-government organizations (NGOs) and businesses (such as tourism).

Decentralization strategies have been widely noted for their ability to both increase the political participation of citizens in local development planning and improve administrative efficiency and capacity. The underlying developmentalist logic of decentralization is that local institutions can better discern and are more likely to respond to local needs and aspirations. This is believed to stem from local authorities—due to their proximity—having better access to information and being more easily held accountable to local populations (Prud'homme 2001; Shah 1998; Ribot 1996). However, there is a great deal of literature that calls into question this benevolent relationship between local authorities and citizens in the Philippines (McCoy 1994; Sidel 1999). For example, in many parts of the Philippines local bosses have often been noted for their violence against their populations.

The widely held belief that decentralization promotes more effective and more democratic coastal management programs must be analyzed more thoroughly. This paper will compare two cases

of decentralized coastal management programs. In one case, private interests play a considerable role in implementing coastal management programs. In the other, the LGU is mainly responsible for coastal management activities.

Frameworks for Analysis

Any form of decentralization has a wide-reaching effect on the actors involved in implementing and receiving public sector tasks, essentially changing the institutional playing field upon which these actors operate. Decentralizing administrative responsibilities changes the actors responsible for implementing public sector tasks, the way these actors work with each other, and the resources available for them to implement these tasks. In other words, the rules under which these actors operate are fundamentally changed. Institutions in this study are described as sets of formal and informal rules and norms that shape interactions of humans with others and nature (Bates 1989; North 1990). They constrain some activities and facilitate others and without them, social interactions would be impossible (Poteete and Ostrom 2002). Following work in new institutional economics, new economic history, and public choice theory, institutions can be distinguished from organizations. If institutions are thought of as "the rules of the game in society," then organizations may be thought of as the players, or "groups of individuals bound together by some common purpose to achieve objectives" (North 1990, p.5).

Traditionally, decentralization strategies have been analyzed in structural terms instead of examining the interaction of structural frameworks and roles. To correct this tendency, Cohen (1999) has proposed the use of an "administrative design framework" for analysis. Instead of focusing on types and forms of decentralization, this framework focuses on administration. This framework can be used to analyze administrative design in terms of the concentration of institutional roles that carry out public sector tasks.

The following analysis will utilize this framework through looking at the public sector task of enforcement delivery. Enforcement is a key issue in the Philippines as there are many environmental laws, but these laws are often not enforced (Eisma 2003, DENR 2001). The role of enforcement has been largely devolved to LGUs. Financial capacity, commitment, coordination abilities, and accountability are compared in these two situations by examining both the structural and role-related aspects of decentralized enforcement. In order to examine the implications they may have for sustainability of coastal management processes, I will present a comparison of each of these strategies.

Two Institutional Models for Decentralized Integrated Coastal Management (ICM)

While there are many forms that decentralization can take, this analysis will focus on two popular models. Focusing on the concentration of roles that carry out enforcement tasks, the case study sites are divided into two categories – 1. *Distributed Institutional Monopoly,* which refers to a decentralization process in which roles are distributed spatially and concentrated in one organization or institution; 2. *Institutional Pluralism*, in which roles are shared by two or more organizations or institutions (Cohen 1999). These two strategies represent popular approaches to decentralization that warrant further analysis.

1. Institutional Pluralism ("Partnership model")

The strategy of institutional pluralism is often assumed to allow non-central and private sector institutions and firms to carry out task-related roles more accountably, effectively, and efficiently than governmental institutions holding monopolies over public sector tasks (Cohen 1999). This strategy refers to an expansion of the number and variety of institutions and organizational role players to which the central government can divest its responsibilities for the production and provision of particular public sector tasks. Traditional forms of devolution are commonly seen

as simply delegating responsibility to local government units (Lowry 2001), not necessarily increasing the diversity of actors involved in providing a public sector task.

Mabini-Tingloy represents an example of institutional pluralism as many public sector tasks are being carried out by NGOs and the private sector. This decentralization strategy entails the devolution of public sector tasks to private sector institutions, NGOs, and LGUs (Figure 1).

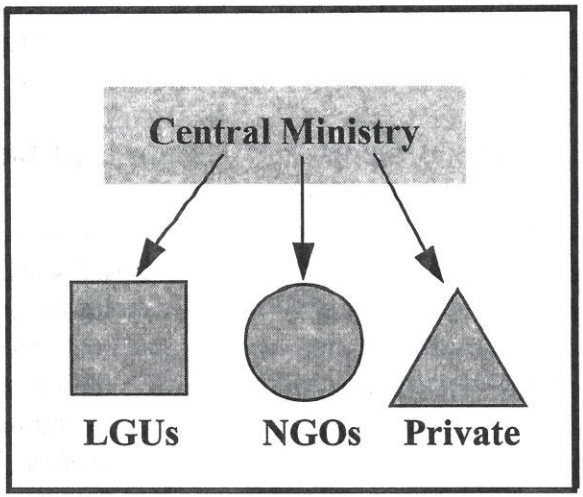

Figure 1. Institutional Pluralistic model of Decentralization (based on Lowry 2001)

Since the end of the Cold War, bilateral and multilateral donor and development agencies have promoted a strategy of "good governance" that "requires a systematic effort to build a pluralistic institutional structure" (World Bank 1989, 61; Edwards and Hulme 1996). Public sector institutions in developing countries are often seen as unable to meet the demand for public goods and services due to reasons including incapacity, insolvency, and lack of accountability. In the "New Policy Agenda" (Edwards and Hulme 1996), renewed prominence is given to the roles of NGOs in poverty

alleviation, social welfare, and the development of "civil society".[1]

To support this agenda, funding to NGOs grew at five times the rate of official development funding during the 1980s (Fowler 1992). As they are seen as more efficient public providers than most central governments, NGOs are expected to translate between the state and local concerns as well as exert pressure on public officials for better performance and greater accountability (Abrahamsen 2000). This emphasis on NGOs has accompanied an increasing call by aid agencies and populist forces for governments to transfer many public sector tasks to NGOs or engage them in overseeing and assisting the state.

In the Philippines, increasing numbers of NGOs assume a variety of functions traditionally performed by the state (Silliman and Noble 1998). Terrence George (1998) estimates that there were 64,500 NGOs in 1998 in the Philippines.[2] The development of the NGO community marks a "fundamental change in the nature of civil society and its relationship to the Philippine state" (Silliman and Noble 1998). The passage of the LGC in 1991 reaffirmed the role of NGOs as legitimate representatives of popular interests. As George notes, nowhere in Asia does a law so explicitly afford NGOs a role in local governance (George 1998).[3] These NGOs are thought to mark an active civil society that would enable choice, scrutinize errant governments, and ultimately lead to regularized plural democracy.

Ngedwa, however, referring to the Kenyan situation, has noted that "civil society cannot be assumed to be congenial or supportive of democratic pluralism by its mere existence, expansion or level of activity" (Ngedwa 1996, 7). He specifies two conditions that are required for NGOs and civil society organizations to have a democratizing impact: first they must actively seek to promote democratization, and second they must have a political opportunity to do so. In the Philippines, there is currently political opportunity granted by the 1991 code. However, considering the entrenched system of familial politics and extreme societal divisions in many

regions, the degree to which NGOs can have an influence on effecting change varies from region to region. In Mabini-Tingloy, NGOs working in coastal management have had a large degree of influence in setting up and maintaining coastal management processes.

2. Distributed Institutional Monopoly (Cooperative Devolution)[4]

Bais Bay is used to illustrate a distributed institutional monopoly approach to decentralized coastal management. In this situation, roles are concentrated in one organization or institution. In the case of Bais Bay, the LGU is the primary implementing agency of coastal management tasks.

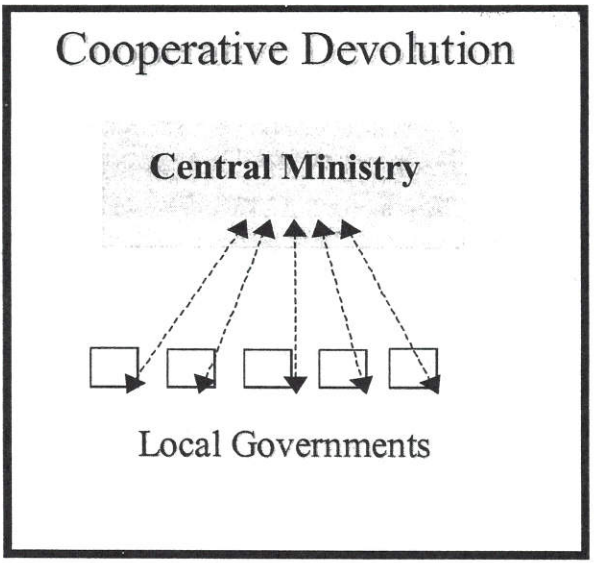

Figure 2. Cooperative devolution. (Lowry 2001)

The process by which decentralization has occurred in the Bais Bay region can be described as following a "cooperative devolution" model (Figure 2). In this model, general policy

directives are set by national agencies and local officials work out implementation details (Lowry 2001). This strategy inherently assumes that local officials are in substantial agreement with policy goals. It also assumes that there is substantial legitimacy, capacity, and efficiency for LGUs to carry out these goals.

While in the institutional pluralistic approach NGOs and private sector organizations perform many public sector tasks along with LGUs, in a distributed institutional monopoly, LGUs take the primary role of carrying out these tasks.[5] Since LGUs are proximally closer to the population they are serving, they are often seen as being better able to address the needs of the community more quickly and with greater understanding of local problems than the central government. When local authorities have powers to make decisions over local matters there is reason to believe that greater equity and efficiency may follow (Prud'homme 2001; Shah 1998; Ribot 1996). However, at the same time that this "local knowledge" is being praised, there are questions about corruption, inefficiency, and lack of capacity that challenge the capacity of LGUs to better serve their constituents or manage natural resources. Limited evidence suggests that the effectiveness of decentralized service delivery depends on the design of decentralization and on the institutional arrangements governing its implementation (World Bank 2001).

Methods

Between June and September 2001, I conducted 47 semi-structured interviews with key informants to investigate connections between formal institutions and ICM sustainability. Interviews took place with government officials, NGO employees, ICM practitioners, academics, and others involved in coastal management activities in Manila, Mabini-Tingloy, and the Manjuyod-Bais City-Tanjay area. Study sites were chosen to represent the effects of different management strategies in large bay ecosystems. Interviews were analyzed using ATLAS.ti for institutional themes associated with ICM sustainability.

Case Study Sites

Mabini-Tingloy and Bais Bay are both coastal areas bordering large bodies of water with long histories of coastal management. In each of these cases, there are different institutional configurations of governmental, private, and non-governmental actors involved (Figure 3). These sites provide a contrast between an NGO/tourism-led coastal management site, Mabini-Tingloy, and a project/Local Government Unit (LGU)-led site, Bais Bay. The latter bay has a long history of participation in coastal management projects, largely as a result of its close proximity to Silliman University. The Mabini-Tingloy area has a history of tourism activities dating back to the 1960s, mainly related to its geographical and political connections to Manila. (See introduction for general description of the case study sites).

Institutional Actors in General Coastal Management Processes	
Mabini-Tingloy	*Bais Bay*
LGU officials in Mabini and Tingloy (mayor, MPCD)	LGU officials in Bais Bay, Manjuyod and MAO, Tanjay (mayor, MAO, MPCD)
Alan White	Silliman University
Haribon [6]	CRMP
KKP [7]	*Bantay dagat*
Bantay dagat [8]	
Resort Owners	

Mabini-Tingloy and Bais Bay are used to represent the two different decentralization strategies discussed above. Mabini-Tingloy represents a case of institutional pluralism as many public sector tasks are being carried out by NGOs and the private sector. The two NGOs most active in coastal management in this region are Haribon (1990-1995) and KKP (1998-present). There are also approximately 55 private resort owners in the region, active to various degrees in coastal management activities.

In Bais Bay, NGOs and private sector organizations do not play a significant role in implementing coastal management tasks. The role of implementing coastal management is concentrated in the LGU. Thus, this case is used to illustrate a distributed institutional monopoly approach. The private sector in the area is mainly represented by the sugar industry, which does not participate in coastal management activities. There are also few NGO representatives. The LGU has thus been the main agent responsible for implementing and sustaining coastal management projects, guided by a number of projects that have been active in the area since the 1970s (mainly Silliman University which, through outside funded projects, has been quite active in working with the LGU to implement coastal activities). As the former mayor of Bais City (1988-2000) describes,

> *Silliman was important but the LGU was the most important player. Silliman has been around for a long time and since they don't concentrate on enforcement, only education, they need the local government to be committed to enforcement.*

While we may expect the mayor to emphasize his role in the coastal management process, the importance of the LGU in coastal management is emphasized by comments made by various interviewees about the effect of the recent change of mayors:

> *The former mayor was very much into environmental control and coastal resource management but the new mayor is different. He has other priorities.*

This statement also implies that the LGU has been the primary factor in determining whether coastal management processes are implemented in this region.

Institutional Pluralism in Mabini-Tingloy

Despite a long history of an active popular base in Mabini-Tingloy,[9] only recently have NGOs emerged as prominent actors.

In the 1990s, the two dominant NGOs, Haribon and KKP, began working in coastal management efforts in this region. Haribon (1990-1995) is a national environmental NGO that worked closely with local fisherfolks to establish the first marine protected areas (MPAs)[10] in the area. Haribon's main objective was to train the local community to become resource managers (Ortega 2001).[11] According to Ortega, a community organizer[12] at the time, the MPAs were not so much for fish but more for community members to be empowered and build a sense of identity". Along with the MPAs, Haribon also established a fisherfolks' cooperative to provide affordable basic commodities and further their empowerment agenda.

As many NGOs in the Philippines began as anti-Marcos organizations (Christie 2001), many do not maintain close partnerships with the state. Haribon is no exception, working mainly with the fisherfolks and later involving the private sector in community-based conservation work. The LGU was involved only to pass the MPA ordinance. By concentrating on fisherfolk empowerment in the resource management sphere, Haribon sought to organize fisherfolks in order for them to have a unified voice amongst that of private resort owners, tourists, and government officials.

This tendency to avoid working with government reflects a general fear of "too much state" amongst development practitioners prevalent during much of the 1980s/90s. After several decades of interventionist and often obtrusive development strategies emphasizing centralized political control, many noticed that inefficient economies and corrupt political regimes seemed to result from this approach. This realization also resulted during a time when civil societies were organizing to press for democratic elections and greater participation in decision making while many governments committed themselves to market-oriented approaches for generating economic growth. The response to these problems occupied the development agenda for much of the 1980/90s. An almost universal focus on state minimalism – on cutting

down size, expense, and responsibilities of the public sector – was a response to decades of "too much state" (Grindle 1997).

Since the mid-1990s; bad state/good society dichotomies have largely broken down. The question now is not how much the state should interfere but rather focuses on the role that the state should play to foster good environmental management techniques (Barrett 2001). The production of capable states, not just minimal ones, is now seen as able to ensure that markets perform effectively, citizens are assured of their basic rights and freedoms, and the environment is sufficiently protected.

This trend to actively put the state back into the development agenda, combined with the democratization movement in the Philippines and a lack of history in dealing with the Philippine state make some international NGOs much more willing to align themselves with governmental organizations. KKP (1998-present), which actively pursues an agenda of enforcement for biodiversity conservation, has as their main target audience the private sector, and to a somewhat lesser extent the Local Government Unit (LGU). Following a trend favoring markets and private initiatives, coastal management is mainly pursued through public-private partnerships. The newest partnership program, "WWF Corporate Partners Program," seeks partnerships with the Philippine business community, expressing WWF's "faith in the private sector" (WWF 2000).[13]

In Mabini-Tingloy, industry, resort owners, and local and provincial governments are included in this partnership agenda. Supporting this goal, KKP has worked to organize a resort owners' association (Friends of Balayan Bay, FOBB) comprised of Manila-based resort owners who espouse a strong commitment to environmental protection. Unlike Haribon, KKP does not concentrate on empowerment of fisherfolks, focusing instead on organizing the private sector.

By organizing groups, NGOs play a role in determining whose voice will have political power. In organizing a private sector group with similar values to its own, KKP sought to ensure that mayors

with coastal management agendas get elected. One resort owner describes the empowerment agenda of KKP as the following:

> *[Conservation]...did not move as fast and hard as it did until KKP organized FOBB because they recognized the absence of private sector representation in multi-sectoral politics... Unlike if you're just resort-resort-resort, now that you're FOBB, the Governor recognizes you. The Municipal Mayors recognized the organization. So now, you can go to any forum and say I'm representing the private sector of Mabini: the coastal stakeholder.*

Thus, within the pluralistic decentralization framework, we can see two distinct strategies emerge from the case studies. The model used by Haribon emphasizes power differences between involved actors. In not specifically addressing unequal power relationships in these models, it is assumed that each actor enjoys equal representation. In this case, the status quo is reinforced and often only the most powerful actors are included in decision-making processes. These two distinct strategies of institutional pluralism have implications for coastal management sustainability which will be examined in the sections that follow in a comparison between these two strategies. It will be argued that the espousal of KKP's strategy has alienated many people (specifically, fisherfolks with little political voice) who were previous proponents of coastal management.

Other major themes to be covered in this discussion of coastal management process sustainability that emerged from the interviews conducted are adequate resources for management, commitment of officials, inter-organizational collaboration, and accountability. The results of this study are summarized in the table below and elaborated upon in the sections that follow.

Public Sector Task: Enforcement of fisheries code laws

	Institutional Pluralism	Distributed Institutional Monopoly
	Mabini-Tingloy	*Bais Bay*
Main Actors Involved	KKP*, Haribon*, Private Sector*, *Bantay dagat*, LGU, PNP Maritime Command, Sulu Fund	LGU*, PNP Maritime Command, *Bantay dagat*
Resources for Enforcement	Adequate – provided by KKP*, Haribon*, the Private Sector*, LGU	Insufficient- the LGU provides all material resources required
Commitment – Short-Term	NGOs/Resort Owners/Tingloy mayor highly committed to coastal management; Commitment can be coerced/encouraged by having many dedicated actors working on the same public sector task	Commitment largely dependent on personal motivations of mayors/MAOs (encouraged by outside actors such as Silliman University and CRMP)
Commitment – Long-Term	Outside actors often do not have a long term commitment necessary to establish commitment in those who remain/use the resources	Commitment changes with political appointments
Inter-Organizational Coordination	High – presence of outside actors provides mechanisms for coordination	Low – generally little coordination between LGUs
Accountability	NGOs not accountable to PI organizations[14]; private sector exerts pressure on public representatives that support coastal management	LGC integrates downward accountability mechanisms

* key actors

Resources for Management

From the interviews conducted, the majority of respondents cited funding as a major issue to consider in the sustainability of coastal management. Given the new coastal management responsibilities under the LGC and the Fisheries Act, local officials need substantial funds to carry out coastal management responsibilities (Lowry 2001). With the passage of the LGC, LGUs receive about 40 percent of the national revenue.[15] Twenty percent

goes to the barangay level, of which there are approximately 43,000; 34 percent to the municipalities, of which there are approximately 1500; 23 percent goes to the cities, of which there are roughly 65; and the remaining 23 percent goes to the 76 provinces (Pimentel 1996). This leaves cities with the majority of the LGU resources due to the result of a "not well-studied distribution formula," resulting in many municipalities and provinces unable to afford the devolution (Brillantes 1996; confirmed by interviews). In a 1997 survey of coastal mayors, 75% identified inadequate funding for coastal management as a key constraint (DENR, *National Policy*, 28). Lack of revenue generating strategies and a lack of resource acquisition priorities on the part of LGUs also contribute to the lack of funding for coastal management activities (Lowry 2001).

In the case studies these resource issues have manifested themselves in different ways. Bais Bay, because of the lack of NGO or private funding sources, is much more directly dependent on the IRA and tax generating revenues for coastal management than Mabini-Tingloy. Bais City, one of the three LGU jurisdictions in the Bais Bay area, is relatively affluent because of its city status as well as its ability to collect taxes from its three sugar mills. While LGUs may impose taxes or fees for the use of municipal waters, many fail to collect from this tax base, making the principal revenue source a share of internal revenue allotment (IRA). Cities are generally better off than municipalities and consider themselves to be financially able to provide basic services to their constituencies (Mayor, Bais City, pers.comm.). It has been easier for cities to achieve the estimated annual budgetary requirements for CRM programs, which cost approximately1-1.3 million pesos annually to begin and maintain this process (White and Cruz-Trinidad 1998). See Figure 4 for an illustration of these differences.

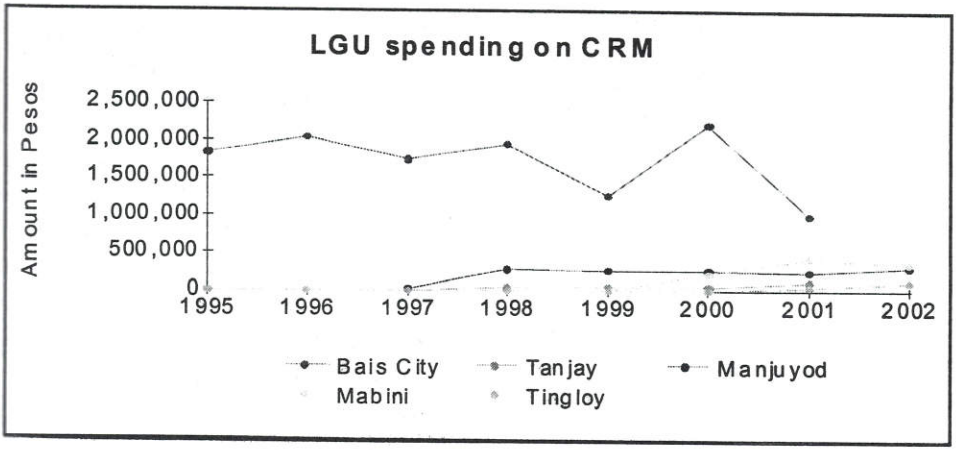

Figure 4

Municipalities in each case study generally felt themselves unable to afford the devolution. Evidence that these coastal communities feel unable to pay for the additional obligation of managing their 15 km of municipal waters can be seen in a countrywide rally for an increased budget for CRM activities. Coastal municipalities through the League of Municipalities of the Philippines (LMP) are advocating for an amendment to the LGC to include the area of municipal waters in the computation of their IRA. Currently the computation is based on land area of the municipality, population, and equal sharing. Many coastal municipalities feel that the management of coastal resources is an under-funded mandate. As the mayor of a coastal municipality has remarked,

> *The LGC has not been good for CRM because national agency officials are devolved to the local level but their salaries come from the IRA allotment. We do not have enough funds to support these people.*

These financial inequalities between governance units tend to hinder productive agreements between adjoining cities regarding management of a shared water resource. For example, tourism

revenues disproportionately favor Mabini over Tingloy. Out of the 28 dive spots in Balayan bay, 19 are within Tingloy's jurisdiction, while only 9 are in Mabini. However, since most dive resorts are in Mabini, Mabini collects the majority of tourism revenues.These inequities between the two units have led to resentment and a lack of coordination in establishing a sustainable divers fee funding mechanism.

Funding has important implications for enforcement potential as can be seen in the following statement by the head of the *bantay dagat* in Manjuyod:

> *The bantay dagat receives little support from the LGU. They are commonly referred to as the 'bantay dawat'* (watcher for bribes) *because they can be so easily bribed. The honorarium amount they are given is too small.*

Even in the more affluent city of Bais, funding for the *bantay dagat* is not always prioritized:

> *The Bantay Dagat in Bais City, despite its effectiveness, suffers from the lack of funds and logistical support. The members are given a daily allowance of P91.00, in spite of the 24-hour daily duty. Considering the length of the Bais coastline that they have to monitor, they are in desperate need of financial support, more boats, more members, and the VHF radio units*

It has been easier for actors in the pluralistic model to acquire enough resources for coastal management because of the high financial input of outside NGOs and private actors. However, there are trade-offs involved in using this model. These high inputs are often not included in the LGU's budget while the outside actors are there. As one KKP worker explains,

> *The local government sees KKP as a resource and figures that if KKP is spending money on a particular coastal activity, then they don't need to duplicate those funds.*

If the system is dependent upon outside actors, when they leave it may be difficult for those remaining to sustain the high financial inputs that were introduced. This has important implications for sustainability since processes that are not funded will not continue.

In Mabini-Tingloy, KKP funds a great deal of coastal management activities. KKP has provided financial and technical assistance to local officials and enforcement equipment such as a speedboat and an honorarium for *bantay dagat* members. To prepare the LGU for its departure, it is working to institute a divers fee system in the area.

Funding for coastal management is also greatly helped financially by the presence of private actors in the area. Resort owners fund much of the enforcement activities that impact the areas near their resorts, mainly regarding MPAs. Through both the 1980s and 90s privately funded enforcement measures drove funding of MPA protection in Mabini-Tingloy. As one FOBB member states,

> *Funding for the resort association's activities comes from our own pockets. Whoever has money, gives to the association.*

While a stable funding mechanism is the most mentioned category contributing to sustainability, substantial funding does not guarantee a sustainable process. Other variables weigh heavily in the sustainability equation, such as those that determine how the funding will be spent. Without a commitment to coastal management by implementing officials, it is doubtful that coastal projects will continue.

Commitment of Implementing Officials

Local commitment to coastal management can be coerced or encouraged through a variety of mechanisms (Lowry 2001). The Philippine national management framework, however, is relatively silent on both inducements for improved local (or national) management or penalties for non-compliance. Both the lack of incentives and a lack of penalties in the LGC and Fisheries

Code to perform coastal management duties have been identified as general constraints to performance (Lowry 2001). Incentives and constraints to commitment have manifested themselves differently in each of the case studies.

Due to this lack of formal incentives for LGUs to perform coastal management duties, personal commitment is essential for coastal management processes to be instituted and maintained. In both decentralization models, commitment by LGU officials is important for sustainability. However, in the institutional pluralism formula, there are committed non-LGU members who can also carry out coastal management tasks. These committed members can often work to ensure that other committed individuals are in decision-making positions. In the distributed institutional monopoly formula, on the other hand, personal commitment by LGU officials is fundamental.

Levels of personal commitment vary between organizational contexts. Those at the LGU are generally most concerned with the delivery of basic services. While coastal management is believed by many to be important, it is not yet widely considered to be a basic service (one large promotional campaign held by the USAID-sponsored Coastal Resources Management Program works towards the recognition of coastal management as a basic service). In the study sites, there were several excellent examples of mayors and MAOs who took the lead in coastal management activities. For example, the former mayor of Bais City, seen by many as a leader in coastal management activities, revealed a personal mission for coastal conservation:

> *Because I grew up in the uplands and saw the people from the uplands follow the topsoil down to the coast, I felt it was my duty to protect the remaining coastline.*

While there are examples of personal commitment on behalf of mayors, there are also political roadblocks in the way of doing coastal management. In Bais Bay, for example, powerful sugar interests contribute to the pollution of the bay. It is therefore

politically dangerous for mayors to enforce policies against these polluters. According to one official,

> *The sugar industry has had some bad effects on the environment – both sugar mills have contributed to the pollution of Bais Bay. But it's hard to be very strict with these industries because about 80% of the people are dependent economically on sugar.*

In a pluralistic situation, such as Mabini-Tingloy, commitment by LGU members is also important, but there are other committed actors already involved. NGO workers also often put in long hours despite little financial compensation. One KKP worker explains her commitment to conservation:

> *I tell myself that I could still protect and conserve the environment even if the KKP has no more money. I could still work for them even if they cannot pay me anymore as long as I am helping people and making them aware of what resources they have. I will still continue to work.*

Besides NGOs, some of the major implementing "officials" are resort owners committed to enforcing the MPAs near their resorts. Resort owners are often concerned about the state of the marine environment partly because this is directly tied to their livelihoods. However, this commitment often transcends purely economic considerations. Many hotel owners in Mabini-Tingloy expressed a profound commitment to the enforcement of the MPAs:

> *Little by little the people will understand because I keep telling them that if we restrict them from fishing here, we're only letting the fish come back. As soon as the fishes are here, there will again be a season for fishing. And they can fish as many fish as they want then. We will have more fish than we can handle. I am not from here. One day I will return to Cebu and the people here will*

inherit the legacy of the sanctuary. I am trying to protect it for the future of this area - so people will be able to harvest more fish. Not like before the sanctuary, when there was nothing at all. If you look at it now, there are a lot of fish because I am protecting it.

Thus, their actions are mainly grounded in their strong commitment to seeing the environment improve. Unfortunately, these enforcement actions occasionally take an extreme form which only serves to alienate the rest of the community from marine resources. This can be seen in the following statement by a resort owner,

We will have to bribe people. I will resort to anything that will prevent any direct negative impact. Anything...that needs to be done...Let me be damned, so that the fish will live. So, I consider myself an extremist, but I will go to the whole 9 yards...I see to it that I'm cleared with the people who matter, the people who really have a stake... That's why I'm telling everybody, even WWF, talk is very cheap. Ink is very cheap. Paper is very cheap.

During the time of Haribon, the implementation and monitoring of MPAs was a community process heavily involving the fisherfolks. However, over time, these MPAs have largely become privatized as various resort owners have taken over their protection. For example, people in the community next to one MPA have begun to divest themselves from management of that MPA since they feel that it has been taken over by local hotel owners. As one community member in Mabini asserts,

Community member: Now, since the resort was established they are the ones who guard and protect the sanctuary. But I think they already privatized the sanctuary and that's the problem now. Because they are in front of the sanctuary.

> *Umm, they might hear my interview they'll be angry with me... but I think that's how it is. After their resort was established, they are the ones now who prohibit fishing. Even before they build their resort, there was already a sanctuary, so how come they are the ones who enforce things now? It's like they already own the sanctuary. The sanctuary was established in 1994 and the resort was only built 2 years ago.*
> *Interviewer: So, what's the difference, if they protect the sanctuary?*
> *Community member: It's the same but the only thing is that sanctuary is for the community, now they are already privatizing it.*

Thus, through the coastal management process currently in place, fisherfolks have become largely alienated from the processes to which they had previously been participants. This has led to increasing tensions between resort owners and fisherfolks, thereby decreasing the legitimacy of coastal management processes by the direct users of coastal resources.

Commitment by each of these different actors has important and complex implications for coastal management sustainability. The commitment of powerful actors can serve to increase commitment of some and decrease commitment of others. For example, in Mabini-Tingloy the zealous commitment of resort owners often serves to decrease commitment of fisherfolks. However, committed resort owners can serve to influence commitment of government officials by helping to ensure that environmentally-friendly politicians are elected. Through financial contributions, one Mabini resort owner feels that he has helped ensure that environmentally-friendly local politicians have been elected in Tingloy:

> *Resort owner: The interest groups are heavily involved in putting councilors, pro-environment councilors in the municipal council in the past*

elections.
Interviewer: So, who was lobbying to have this?
Resort owner: We were giving them campaign funds, materials. We were able to get just one here in Mabini, but we were able to get four in Tingloy.

The election of such pro-ICM officials may contribute to rapid progress in ICM. Of course, if local politicians are perceived as overly zealous in their commitment to enforcement or selectively enforcing laws to favor certain sectors, then long-term sustainability may well be eroded.

In conclusion, while personal commitment by some seems to ensure that ICM is established, accepted, and well-informed, the zealous commitment of others may be problematic for ICM sustainability. In an ideal situation all the actors would be committed to coastal management. However, this is not often the case. Due to internal community tensions and existing power relationships, it is likely that the commitment of some actors will positively or negatively influence the commitment of others. While it is true that with a number of committed individuals dedicated to a task, this task will most likely be carried out, it is important for long-term sustainability that these individuals inspire commitment in those actors who will remain in the area. Outside actors have the potential to influence this commitment, yet it is important to try to get the commitment of those who actually are dependent on the resources in question and not alienate the majority of the community in the process of task delivery.

Inter-organizational Coordination/Collaboration

In any decentralized context, coordination between actors is essential to implementing and sustaining effective coastal management processes. In a distributed institutional model, it is essential that LGUs work effectively with the central government. In an institutional pluralistic context, an environment is created in which public sector responsibilities are distributed amongst a wide

variety of actors. This makes it essential to understand the roles and coordinational issues between these different actors. Understanding the factors that encourage and hinder coordination is important in both types of decentralized strategies and the factors tend to vary contextually.

In Bais Bay, there are temporal and spatial tensions between mayors that may inhibit coordination for coastal management. Mayoral differences can impede abilities to coordinate on coastal management projects. One Silliman employee attributes the failure of MPAs in Bais Bay to these mayoral differences,

> *The marine reserves failed because of a quarrel between the mayors of Manjuyod and Bais City.*

Temporal relationships between mayors can also inhibit coordination. A concern expressed by a leading ICM practitioner is the tendency for political leaders to undo the efforts of political rivals,

> *There were important mayors like Boy Villanueva in the past who were quite supportive of coastal management. Now he is no longer in power and you have a new mayor and he feels obliged to either undo all the work of Boy Villanueva or ignore it. A bad case scenario is that he just ignores it and the worse case scenario is that he actually undermines it. The latter is likely if the incumbent mayor is a political rival.*

This concern is emphasized by comments made by a Bais City MAO on the change from a mayor supportive of coastal management activities to a different administration:

> *So we established a [mangrove] nursery during the early part of 1990.... It has been stopped because of the change of [mayoral] administration. The person responsible has already been laid off. So, there's no more nursery.*

After the change in Mayor, this individual was removed from her

position in the city government and transferred to the Department of Agriculture. *Bantay dagat* members were also changed and the new members had to be trained. The considerable efforts of Silliman Marine Lab to educate the LGU staff were to some degree nullified. According to a biologist at Silliman University,

> *We at Silliman would say that we (Silliman University Marine Laboratory personnel) have contributed to the awareness and the campaign to stop illegal fishing. I think that's the reason, but we should really now be more vigilant because of the changes in the guards, the new administration, changes in the bantay dagat. We need to again launch a massive information campaign, training, etc.*

This quote again illustrates the importance of the mayor in distributed institutional monopolies. It also illustrates that it is difficult to sustain coastal management processes through changing political administrations.

Inter-mayoral relationships in Mabini-Tingloy, on the other hand, have been greatly helped by continuing assistance by NGOs. KKP has worked to establish a variety of inter-LGU coordinating mechanisms in order to plan coastal management activities. They are working towards a common management plan among the 11 municipalities involved in the Balayan Bay region. Various groups have been formed in order to encourage this collaboration such as MFARMCs, BFARMCs, the IFARMC, MATINGCAD-C, and *bantay dagat*. To encourage this collaboration, they bring in various actors impacted by coastal management (divers, resort owners, LGUs, etc) to work in partnership with them.

However, there are other types of conflicts that seem to have been exacerbated by KKP's activities. For example, conflicts between fishermen and resort owners have not been helped by KKP's presence. These conflicts largely revolve around privatization of the MPAs discussed above and differential enforcement of the Marine Protected Ordinance No. 11-91,

amended in 1993. This amendment is quite unclear (Eisma 2003), yet it should read that both diving and fishing are off limits inside the MPAs. However, generally diving has been allowed inside the MPAs because the main enforcers are resort owners/divers while fishing has generally been prohibited. These issues should be addressed by putting conflict resolution mechanisms in place, which has not been done by either Haribon or KKP.

Thus, more committed actors at the coastal management table have potential implications for changing dynamics, yet the direction of this change depend on the agendas of the actors involved. Due to the changing nature of political appointments, relying on elected officials, such as mayors, as the principal agents of ICM, is likely to always destabilize ICM in the long term. On the other hand, as ICM becomes increasingly mainstream, the election of sympathetic political leaders may help establish ICM as a basic service. Committed outside actors can play a role in encouraging the election of these leaders by rallying local people to support coastal management processes.

Accountability

For various reasons, decentralization is often associated with increasing accountability. Accountability is generally interpreted as the means by which individuals and organizations report to a recognized authority and are held responsible for their actions (Edwards and Hulme 1994). Cohen (1999) asserts that providing tasks through a pluralist rather than a monopolist administrative design tends to promote accountability. Others theorize an increase in accountability when decentralizing decision-making responsibility to local governments as they are able to "discern the needs and preferences of their constituents, as well as provide a way for these constituents to hold local governments accountable to them" (Smoke 1999, 10). Others view NGOs as inherently more accountable than the state due to the idea that NGOs are concerned with civil society, and therefore potentially more "accountable" to the needs of subaltern groups (Clark 1995).

Ribot has noted that it may be more important to examine the kind of actors who are empowered in decentralization because these acts of empowerment shape the outcomes that can be expected (1996). Different actors are embedded in different kinds of accountability relations, and these relations shape the ways in which they exercise their powers. There are multiple accountabilities to consider: downwards to partners, beneficiaries, staff, and supporters, and upward to their trustees, donors, and host governments (Edwards and Hulme 1996). Downward accountability can be promoted in an institutional pluralism model through the empowerment of local citizen groups to enable them to participate more directly in central and non-central government operations.[16] As a result of the empowerment of NGOs in the LGC, they now have a greater ability to empower actors in the local situations in which they work. For example, KKP's concentration on private actors (the resort owners) rather than on fisherfolks in Mabini-Tingloy reinforced the privatization of the MPAs.[17] As decentralization concerns distinctly public resources, privatization takes place when public resources are transferred to private groups, such as individuals, corporations, or donor-organized management committees, and NGOs (Guyer 1994; Fox 1990; Fox and Brown 1999).

NGOs may be upwardly, downwardly, or horizontally (to their peers) accountable within certain legal and moral bounds, but their membership base or donor interests often largely determine their objectives—not the public as a whole (Ribot 2001). NGOs in the Philippines are primarily funded by international donors. Thus, they must provide evidence that the funding they received was used according to donor guidelines. The people who receive NGO services have little if any means to hold the NGOs accountable. With increasing donor funding given to NGOs, there is fear that donor funding may reorient accountability upward, away from the grassroots, and bias performance measurement toward criteria defined by donors (Edwards and Hulme 1996). For example, before a major Debt for Nature swap in 1990,

Haribon was a small member-based bird-watching organization. With the swap, this organization grew considerably and accountability shifted upwards. KKP is also not downwardly accountable as they are a national organization with a worldwide membership base. Most of their accountability concentration focuses on partnerships with the provincial LGU. The director of KKP explains,

> *Our partners in the provincial offices (PG-ENRO and PPDO) sit on the Provincial Land Use Committee (PLUC) and are responsible for approving LGU plans. Their involvement in the PLUC will make sure that LGUs look at the ICM plan before they submit their plans for approval.*

The private sector is also not downwardly accountable since no conflict resolution mechanisms have been developed to deal with the increasing tensions between private interests and those of fisherfolks. However, the private sector, due to its commitment to coastal management, its financial resources, and empowered status, does exert pressure on public officials to uphold coastal management agendas.

Cohen argues that distributed monopolies do not make systems more accountable because task-related roles are monopolized and not shared. As Moore (1997) also points out, states are not likely to be accountable to a population from whom they do not earn their income through taxation.[18] Thus, there is likely to be greater accountability to private interests on the part of the local governments. For example, commercial fishers are often well organized and are often released with a nominal fee for illegal activities. Committed business interests can also lend money to ensure that coastal management officials are elected.

Thus, accountability in distributed monopolies is more dependent on personal commitments of mayors than on institutional pluralistic models. While there is a mechanism in the LGC to replace a mayor who is not performing well, this is often not used. It takes a great deal of resources and an understanding of the political

process to engage this mechanism. In the institutional pluralistic model, there are more actors involved in performing a public sector task. More committed actors involved has the potential to increase the amount of downward accountability depending on the actors empowered in a given situation.

Conclusions

Decentralized governance approaches are often critiqued for their limited resources, failure to encourage commitment of local officials, lack of coordination between groups, and low local-level technical and managerial capacity. However, this blanket critique does not consider the myriad forms that decentralized management systems can take. Within the Philippines, distinguishable versions of decentralized coastal management exist. While, on the surface, increased resources, commitment, inter-organizational coordination, and accountability are more likely to be found in an institutional pluralistic situation than in a distributed institutional monopoly, each of these potential factors carries important implications for ICM process sustainability.

As the LGU often does not have enough money or legitimacy to collect taxes, the presence of powerful outside actors committed to coastal management tends to bring increased resources for these activities. However, once these actors leave, generally the processes they initiated do not continue. Thus, to enhance the potential for process sustainability, it is essential that some mechanism for funding continuation be put in place before these actors leave. Private actors committed to coastal management are also a key source of resource provision, as is the case in Mabini-Tingloy. While funding was the category most mentioned in interviews conducted as contributing to process sustainability, commitment is also a key factor in determining whether processes will begin and be sustained.

Without the commitment of private actors and NGOs to coastal management-related tasks, the sole responsibility lies with the LGU, in which case commitment relies on the mayor's personal

commitment to coastal management. Mayoral commitment is subject to political turnover. However, as coastal management gains greater acceptance, it can be expected that officials sympathetic to coastal concerns will increasingly be elected. Encouraging this long-term commitment amongst those stakeholders who remain in place is a major challenge to ensuring sustainability. As outside actors often do not have a long-term commitment to coastal management in any one particular area, they can play a role in ensuring that people in the place they set up these processes do.

The level of accountability in a given situation largely depends on the actors empowered. Finding a balance between upwards and downwards accountability is essential in developing a successful decentralization model. In a distributed institutional monopoly, decentralization mechanisms may serve to empower local elites with little accountability to their constituents. While there are accountability mechanisms in the LGC, these have never been used to uphold coastal management agendas. In Mabini-Tingloy, the private sector exerts pressure upwards onto public officials to uphold coastal management agendas. However, the private sector is not downwardly accountable to the people. The development of conflict resolution mechanisms would allow for dialogue between the increasingly marginalized fisherfolks and private resort owners in the area, thereby increasing downward accountability. Although there are generally greater accountability mechanisms that could be achieved in the institutional pluralism model, both upwards and downwards mechanisms must be actively cultivated.

Thus, a situation of institutional pluralism may have the potential to better allow non-central and private sector organizations and firms to carry out task-related roles more accountably, effectively, and efficiently than governmental institutions holding monopolies over public sector tasks. This will most likely occur in situations with an accountable private sector, political space necessary to accomplish public sector tasks, and an expressed agenda to accomplish these tasks. In some regions

in the Philippines, there is currently the necessary political space to incorporate committed NGO and private interests in the coastal management arena. Correcting these potential problems in a model of institutional pluralism is possible when it is an expressed agenda of the actors involved in delivering public sector coastal management tasks.

Notes

[1] This emancipatory view of civil society reflects a long-standing tradition in Western political thought. Since de Tocqueville, the presence of voluntary associations (organizations below the state and above the family, and sometimes including the for-profit sector) has been considered by many to promote pluralism, democracy, rapid economic growth, and effective public service (de Tocqueville 1900; Uvin 1996). While early debates about civil society were tied to fundamental questions about what it meant to be civilized and the tensions between a state of nature and an ordered society, most contemporary debates seek to create institutions that promote equivalence and freedom within the logic of the market.

[2] As Uvin points out, the emergence of civil society is a qualitative matter, not a quantitative one. Thus, while there are many NGOs in the Philippines, this does not necessarily mean that there has been an equivalent increase in democracy, economic growth, or effective public service (Uvin 1998).

[3] Section 35 of the LGC states that: "LGUs may enter into joint ventures and such other cooperative arrangements with people's and non-governmental organizations to engage in the delivery of certain basic services, capability-building and livelihood projects, and to develop local enterprises designed to improve productivity and income, diversify agriculture, spur rural industrialization, promote ecological balance, and enhance the economic and social well-being of the people."

[4] The distributed institutional monopoly approach can take many different forms (see Lowry 2001 for elaboration); however, for purposes of this case study, the form taken can be described as a cooperative devolution model.

[5] Officially Mabini-Tingloy is also under a cooperative devolution strategy. Due to the increasing numbers of NGOs and private interests involved in coastal management in this region, however, we can consider it to be a case of institutional pluralism.

[6] Haribon's mission is 'biodiversity conservation through protected area management. Haribon's scientists and organizers team up with the site communities to develop and employ resource management strategies...working to raise the national consciousness on sustainable approaches to development, Haribon aims to build a constituency for environmental issues that will call for prioritizing: habitats and sites for protection, conservation issues, and conservation actions.' (Ortega 2000). "Sanctuaries of San Teodoro," Orlando C. Ortega, *Haring Ibon*, July/August/September 2000.

[7] KKP (Kabang Kalikasan ng Pilipinas), established in 1996, has a mission to "stop, and eventually reverse the accelerating degradation of the environment in the Philippines and to build a future in which Filipinos live in harmony with nature." KKP is the Philippine Counterpart to the US-based NGO World Wildlife Fund (WWF).

[8] The *bantay dagat*, or sea watch, refers to community members given a mandate to enforce fisheries laws.

[9] Central Luzon, where Mabini-Tingloy lies, has long been considered to be an area of intense peasant resistance against the state.

[10] A Marine Protected Area is defined as "any area of the intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment" (IUCN 1988).

[11] Pseudonyms have been used to protect the identities of the informants.

[12] Community organizers (CO) are social workers that often live in a community and help with goals of participation and empowerment in various development projects. COs are common members of community-based projects.

[13] Examples of this increasing tendency to partner with business interests are illustrated in the WWF Philippines 2001 Annual Report. Their public-private partnership agenda follows a popular contemporary donor view that partnerships between CSOs and 'participatory and accountable governments' are the only way to secure sustainable development (Hearn 2001).

[14] KKP and the LGU have a Memorandum of Agreement (MOA) that may provide some degree of accountability.

[15] Prior to the passage of the LGC, LGUs received only about 11 percent of the nation's taxes (Pimentel 1996).

[16] The LGC actually contains a provision allowing for greater downward

accountability. This mechanism has been used in a limited number of cases in the country, yet provides an important mechanism.

[17] Resort owners are also becoming more influential in determining election outcomes.

[18] Thus, countries that draw most of their income from extractive industries such as oil, timber or mining exports, are less dependent on their people for revenues, also creating a disconnect between state and society (Yates 1996; Watts 1987).

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CURRENT STATUS/ROLE OF BIOPHYSICAL STUDIES IN INTEGRATED COASTAL MANAGEMENT SUSTAINABILITY IN SELECTED SITES IN NEGROS ORIENTAL AND SOGOD BAY, LEYTE PHILIPPINES

Roy Olsen D. De Leon

ASTRACT

Biophysical studies have become an integral part of the Integrated Coastal Management (ICM) process. Such studies in most cases take a significant portion of the ICM budget costing about 14 per cent of the year 1 budget per kilometer of coastline. Yet, a review of different Coastal Resource Management (CRM) resource profiles and plans, legislation developed in aid of CRM, and augmented by interviews of 30 key informants in selected sites reveals that the biophysical data generated are underutilized. A trace of the flow of information in the ICM process cycle further reveals that in most cases, the information stops in the planning stage. The low utilization of information can be attributed to problems in accessing the information, lack of perceived need for the information, or lack of technical know how in utilizing the information as well as updating the information.

Introduction

There is no question that current integrated coastal management (ICM) initiatives have been triggered by the biological and physical state of the coastal ecosystem. The decline in fisheries (Dalzell et al., 1987), mangrove (Biña et al., 1978), coral reef cover (Gomez et al., 1981), or the quality of our seas, for instance, has awakened the government, academe, non-governmental organizations, and people's organizations to formalize or forge their acts in mitigating the situation.

The biophysical data sets generated by scientific studies documenting the improvement on fisheries, as a result of the establishment of the pioneer marine sanctuaries in Sumilon and

Apo Islands in the Central Visayas (Alcala, 1981, 1988; White, 1988; Alcala and Russ, 1990), have greatly influenced the establishment of more than 500 marine sanctuaries (Alcala, 2001) all over the country.

Because of the importance of biophysical studies in ICM, and as advocated by ICM initiators, such studies have become an integral part of the ICM process. The pioneer community based resource management effort in Apo Island, Negros Oriental earlier on recognized the need to conduct an environmental survey to document the status of coral reefs, diversity, and abundance of reef fishes with the objective to evaluate reef quality as a result of the management efforts (Tiempo et al., 1986). The coastal management planning process now being adapted for Philippine local government units continues to include primary and secondary biophysical data sets to identify resource issues and earlier on establish the baseline information for evaluation of the management initiatives (Department of Environment and Natural Resources et al., 2000).

Biophysical studies in most cases take a significant portion of the ICM budget. The cost of resource and environmental profiling has been estimated at 25,333 PhP (50.00 PhP: 1 USD) or approximately 14 per cent of the year 1 budget per kilometer of coastline (Ablong et al., 2000). With the significant cost of conducting biophysical studies, evaluating the extent and impact of the studies and determining the issues associated with maximizing the use of the data sets are imperative.

This study adopts the concept of ICM sustainability embodied in GESAMP (1996). For a program to be considered sustainable, it must build on previous initiatives, complete the stages in the management cycle, and loop to a new generation program. The link and progression of programs should be clearly manifested and intentional. Completion of the cycle and the subsequent looping to the next generation program require benchmarks and updated information to feedback to the different stages in management. An evaluation of the Central Visayas Regional Project implemented

in 1984 to 1992 by the Silliman University Marine Laboratory (Calumpong, 1996) finds insufficiency in the baseline information leading to a difficulty in evaluating the results of the initiatives that can feedback to succeeding programs. The Coastal Resource Management Project (CRMP), a United States Agency for International Development (USAID) sponsored project, developed a monitoring and evaluation protocol for municipal coastal resource management (CRM) which included as key element an information management system. The system calls for an updated biophysical information and is deemed as benchmark for three levels of CRM, the third level indicating sustained implementation of the program (Courtney et al., 2002).

This study attempts to trace the impact of biophysical studies on the sustainability of ICM processes with emphasis on programs that aimed to develop and implement a coastal resource management plan at the municipal level. It intends to document the availability of data sets, the extent of use of the biophysical studies, the prevailing methods in gathering biophysical data, and the institutional capabilities/set-up in the conduct of the studies.

Study Sites and ICM Programs in the Area

For this study, ICM projects in Negros Oriental and Sogod, Southern Leyte have been considered for logistical reasons. These two sites, however, are deemed good cases because they illustrate the variations on the extent of use of the intensive technical biophysical studies and the contribution or impact of these on the sustainability of ICM initiatives.

Negros Oriental. Negros Oriental is located in the southeast coast of Negros Island, in Central Philippines. The province has a long history of ICM activities and is one of the few provinces in the Philippines that had institutionalized ICM activities with the creation of the Provincial Resource Management Office. Negros Oriental is the home of the pioneer program in community based resource management situated in Apo Island. The province

is also a learning site for the more recent Coastal Resource Management Project (CRMP) of the Department of Environment and Natural Resources and from 1984 to 1992 was the site of the Central Visayas Regional Project I. A technical (Calumpong et al., 1997) and community generated resource and ecological profile (Yambao et al., 2001) have been drafted for the implementation of CRM in selected sites in the province.

Prior to CRMP, various resource assessments have been conducted in several sites in Negros Oriental. These include assessments conducted by the Center for the Establishment of Marine Reserves in Negros Oriental (CEMRINO) with the purpose of establishing a network of marine reserves in the province. Silliman University Marine Laboratory conducted resource assessments in Bais Bay under the Coastal Living Resources Project and the Environmental Resource Management Project (Calumpong and Luchavez, 1997). The Office of the Department of Environment and Natural Resources in Region 7 conducted biophysical studies to support the establishment and likewise monitor the Coastal Environment Project sites in Negros Oriental.

To date, the Provincial Resource Management Division continues to conduct biophysical studies to assess the suitability of areas for the establishment of marine sanctuaries and evaluate the progress of management for the established sites. The Synergistic Management of Coastal Resource (SYMCOR) also conducted resource assessments specifically aimed at establishing more marine sanctuaries and managing mangrove resources in the province.

The study sites in Negros Oriental include the five municipalities (Manjuyod, Amlan, San Jose, Sibulan, Dauin) and three cities (Bais, Dumuguete, and Tanjay).

Sogod Bay, Southern Leyte. Sogod Bay is located in the southern coast Leyte. The bay was among the 12 priority bays identified by the Bureau of Fisheries and Aquatic Resources

of the Department of Agriculture's Fisheries Sector Program (FSP). Sogod Bay is currently the site of the Fisheries Resource Management Project (FRMP) (phase 2 of FSP). The FSP allowed the drafting of a technical resource and ecological profile for the bay (Calumpong et al., 1994). Currently the technical resource and ecological profile is being updated through the FRMP augmenting the community generated (Participatory Community Resource Assessment Profile) resource and environmental profile (BFAR Regional Office No. 8 and Municipality of Liloan, Southern Leyte, 2001;BFAR Regional Office No. 8 and Municipality of Malitbog, Southern Leyte, 2001).

This study considered the municipalities of Bontoc, Libagon, Liloan, Malitbog, Padre Burgos, San Francisco, Sogod, and Tomas Oppus in Sogod Bay.

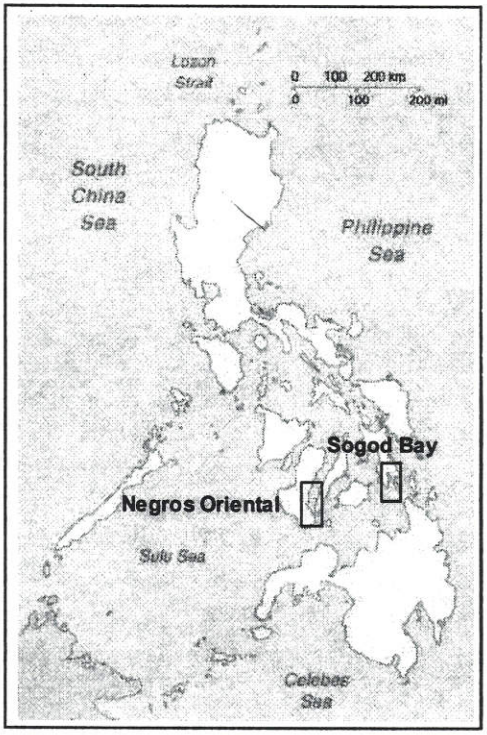

Figure 1. Map of the Philippines showing study sites. (modified from http://education.yahoo.com/reference/factbook/rp/map.html)

Methodology

This study reviewed the different CRM resource profiles and plans of the study sites, legislation developed in aid of CRM, and the implemented programs. Document analysis was augmented by interviews of 30 key informants. The key informants included Municipal/City Planning and Development Officers; Municipal/City Agricultural Officers; and personnel both from local and regional offices of the Department of Environment and Natural Resources (DENR), and the Bureau of Fisheries and Aquatic Resources of the Department of Agriculture (DA-BFAR).

The coastal management planning process framework adapted for Philippine local government is used as a guide (Figure 2) in tracing the impact of biophysical studies on the sustainability of ICM. In principle, the biophysical data set should permeate all the 5 phases of the process.

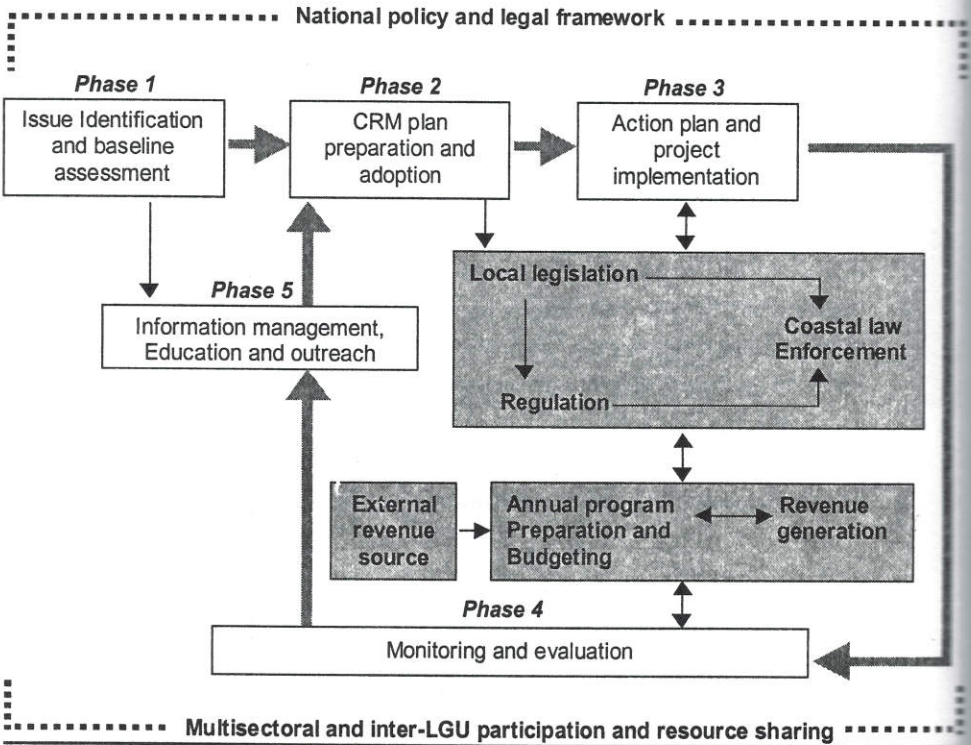

Figure 2. The coastal management planning process being adapted for Philippine local government (Department of Environment and Natural Resources et al., 2000a).

Findings

Biophysical Study Approaches.

There are currently two approaches being used for biophysical assessments in support of coastal resource management. These are the Resource Ecological Assessment (REA) and the Participatory Community Resource Assessment (PCRA).

Resource Ecological Assessment. REAs are detailed studies which include biological (species composition and diversity, extent and condition of coastal ecosystems, fish stock assessments, plankton composition, coliform bacterial contamination), and physico-chemical (nutrient analysis, sediment characteristics, hydrography) parameters. The reports or profiles generated are technical and quantitative in nature. REA is usually conducted by highly skilled technical persons mostly coming from the academe. Methodologies are generally based on English et al. (1994).

For CRMP Learning Sites in Negros Oriental, Silliman University Marine Laboratory (SUML) was contracted by the United States Agency for International Development (USAID) to establish baseline information and determine critical indicators for monitoring (Calumpong et al., 1997).

Likewise, SUML was contracted by DA-BFAR to conduct REA for Sogod Bay in Southern Leyte for the purpose of developing a management plan for the bay in order to regenerate coastal resources and rehabilitate the coastal environment, among other objectives (Calumpong et al., 1994). At present, SUML is conducting a Post REA activity to evaluate the impact of CRM initiatives in the bay as a result of FSP.

In areas where Local Government Units or National Government Agencies (DA-BFAR, DENR) have established marine protected areas (MPAs), an abbreviated REA specific to coral reef ecosystems are regularly done to monitor the progress of the MPAs.

Participatory Community Resource Assessment. PCRA involves community participation with very minimal technical input and relatively minimal cost of assessment. This approach has been applied more recently to increase the participation of the community in the management process. Usually resources maps, transect, and trend diagrams are generated as a result of consensus among community participants (Walters et al., 1998).

PCRA activities in CRMP learning sites in Negros Oriental have been implemented by the Rotarian Martin "Ting" Matiao Foundation (TMF). Selected community members in each of the CRMP learning sites in Negros Oriental conducted their own PCRA with CRMP and TMF staff assistance and came up with their own municipal coastal environmental profile. The municipal profiles are summarized in Yambao et al. (2001).

More recently, prior to the Post REA activities in Sogod Bay, Southern Leyte, the Office of the DA-BFAR Region 8 conducted PCRA activities in sites identified for the implementation of FRMP.

Extent of Use of the Biophysical Studies

In general, the use of biophysical studies is minimal and limited to determining coastal zones (e.g. multiple use, rehabilitation, tourism zones) and baseline information. The extent of use or impact on CRM of each approach to data collection is rather difficult to ascertain. While two separate studies were actually made and two separate reports drafted, the PCRA report (Yambao et al., 2001) made reference in most cases to the REA report (Calumpong et al., 1997).

Negros Oriental. The results of the PCRA and REA studies incorporated in the profiles of each of the learning sites are very much evident in each of the coastal resource management (CRM) plans such as those of the Municipal Government of Manjuyod,

(2001), the Municipal Government of San Jose, (2001), the City Government of Tanjay, (2001). In fact, the coastal environmental profile occupies a chapter in the management plans.

Interviews with City/Municipal Planning and Development Officers (C/MPDO) indicate that the profiles do aid the municipal administration in determining priority sites (short listing) for the implementation of management initiatives and the establishment of coastal zones. However, in the final determination of the sites, a detailed technical description of the resources and the boundaries of management areas is carried out by the Provincial Resource Management and Development Office (PRMDO). The findings of such studies are usually attached or referred to in the enactment of Ordinances which legalize the establishment of the marine reserves.

The Municipality of San Jose has enacted an Ordinance (Ordinance No. 1, Series of 2000) known as "Comprehensive Ordinance for Sustainable Management, Development, and Conservation of Coastal Resources of the Municipality of San Jose, Negros Oriental". This ordinance, which includes the establishment of coastal zones among others, makes reference to the coastal environment profile drafted (Yambao et al., 2001) for the municipality. In Bais City, the profile is now being used to guide the proponents of an ordinance to zone Bais Bay.

Interviews with the CPDOs of Bais and Tanjay Cities reveal that the profiles are used to determine mariculture and possible development sites. In Bais, sites for milkfish fish cage culture were determined using the profile. In Tanjay, investors and developers have requested copies of the profile to determine possible sites for investment and development purposes. An ordinance to control and manage the collection of fish fry in the coastal of waters Tanjay City was drafted based on the profile but because of some lobbying by some constituents, the ordinance was not passed.

During the conduct of this study, Bais Bay was affected by the red tide phenomenon. As mandated by its charter, the Bureau of Fisheries and Aquatic Resources Regional Office No. 7

(Regional Fisheries Laboratory) will have to conduct monitoring activities in the bay. The REA profile (Calumpong et al., 1997) served as baseline information to determine the normal plankton counts in the bay.

In Dumaguete City, opponents of the reclamation project used the biophysical data set, unsuccessfully, to convince the Philippine Ports Authority (PPA) and the City Administration to abandon their plan to reclaim a portion (1.3 ha) of the seas fronting Silliman University for a fast ferry terminal. In spite of the biophysical data set presented to them, the local office of the Department of Environment and Natural Resources, the Bureau of Fisheries and Aquatic Resources, and the Tourism Office all declared that there was nothing wrong with reclaiming the area, heedless of the consequent potential loss of 1.3 ha of fishing grounds and biodiversity rich habitat (Alcala, 2002). It took the National Historical Institute to finally convince the Regional office of the Environmental Management Bureau of DENR to require the PPA to conduct a full-blown Environmental Impact Assessment (Pal, 2002).

In aid of legislation to limit fish cage culture of milkfish (*Chanos chanos*), in Siyt Bay, Negros Oriental, SUML was requested to undertake a study (Calumpong, 1999) to determine the carrying capacity of the bay as there have been reports of alleged algal bloom and sediment accumulation. The study resulted in an ordinance stopping and monitoring any expansion of the fish cage operation, and imposing an annual environmental fee for every square meter of fish cage. In May 2002, a fish kill was experienced in the bay and the biophysical study was used as baseline information for an independent monitoring and evaluation by fish cage operators.

Sogod Bay, Southern Leyte. In 1997, the Regional Development Council and the National Economic Development Authority of Region 8 (with funding from the USAID) commissioned the drafting of a Comprehensive Coastal Resource

Management Plan for the Eastern Visayas Region which included Sogod Bay (Mendoza, 1997). A review of the management plan made reference to and relied mostly for its baseline information on the FSP REA profile (Calumpong et al., 1994). There are, however, no reports whether the said plan was made available to the municipalities in Sogod Bay or if it is now being implemented in the area.

In the 8 municipalities surveyed, only the Municipalities of Malitbog and Liloan had CRM related plans (Municipal Government of Malitbog, 2000, Municipal Government of Liloan, 2001) that made reference to the biophysical studies. The Malitbog plan made reference to the FSP REA profile (Calumpong et al., 1994) while the Liloan plan was based on a more recent PCRA initiated by DA-BFAR Region 8. In addition to the establishment of marine sanctuaries or "parks", most of the activities focused on increasing fisheries production (e.g. fish pot making, seaweed production, promoting deep sea fishing, tilapia culture).

Access to information for all stakeholders is not certain. The interviews of key informants in the area further revealed that municipalities were never given copies of the FSP contracted REA for Sogod Bay. Copies of the recent DA-BFAR Region 8 PCRA profiles are yet to be made available to most of the municipalities and obviously cannot be referred to as yet. Changes in the local political administration as well as CRM related personnel has further distanced the link between FSP and current initiatives.

A good example of an outcome without the benefit of biophysical information is the mangrove reforestation initiative in the area. The FSP Profile for Sogod Bay (Calumpong et al., 1994) recorded that *Rhizophora* species is not the dominant species in the bay considering the rocky substrate and therefore when used as a reforestation species will most likely not survive. However, reforestation activities in the bay insisted on using *Rhizophora* species as a reforestation material and therefore performed poorly (0-25% survival rate). This is indicative of project implementation

and planning that does not take advantage of the benefit of biophysical data sets or consider the biophysical condition in the area.

Since the results of the FSP REA Profile for Sogod Bay were not made available to the municipalities, the biophysical study had very little impact on the establishment of marine sanctuaries as well as other management initiatives. Interviews reveal that the establishment of more recent marine sanctuaries was based on the recommendation of the DA-BFAR Region 8 divers who conducted another baseline study.

The FSP REA Profile is currently being used as baseline data to determine the current state of the resources and evaluate the impact of resource management initiatives on the bay since FSP. The results (Post REA) will be used to guide the implementation of FRMP initiatives on the bay.

Biophysical Data Management

Negros Oriental

Data sets generated for the CRMP have been published (Calumpong et al., 1997; Yambao et al., 2001) and are available at the Municipal Agricultural Office, Municipal Planning and Development Office of the learning sites. Copies are also available at the Provincial Resource Management Division Office (PRMDO). Although these are made available to the general public, only a few (the academe, media, non-governmental organizations) do request for the biophysical information.

The CRMP likewise developed the Municipal Coastal Database (MCD 2000) software (CRMP, 2000) to electronically house the information generated through the PCRA and the REA and other secondary information acquired in the development of the municipal profile. The MCD runs on Access Microsoft Software platform. The MCD also allows for the updating of information and report generation as well as minimal trend analysis.

Each learning site municipality was provided with the software and trained to use the software. This is available and could be accessed usually at the Municipal Planning and Development Office. The Provincial Municipal Coastal Database Center which is housed at the Provincial Resource Management Division Office (Figure 3) also needs to be upgraded.

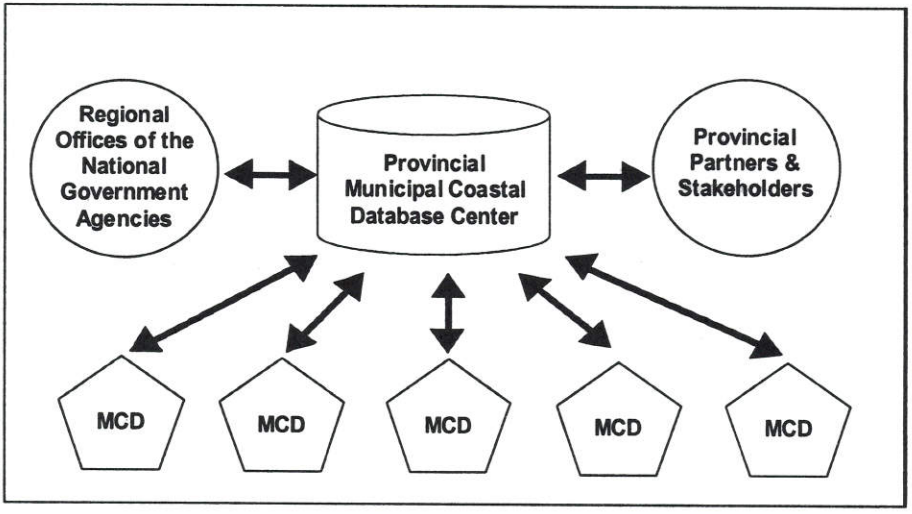

Figure 3. Current flow and management of database between of local and regional levels. (modified from DENR et al., 2001b)

Municipal planning and development officers as well as Municipal agricultural officers reveal that they have not updated the MCD since its release because of time constraint and lack of recent assessments. Despite their training, they are unable to update PCRA because of budgetary constraints as well as lack of technical expertise to supervise the activity. They are currently relying on the technical expertise from the PRMDO to monitor their marine sanctuaries. Most of the personnel involved in CRM are likewise overwhelmed by other assignments and therefore cannot update the information.

Sogod Bay, Southern Leyte

Results of the FSP REA Reports are available only in limited printed form at the Regional Office of the DA-BFAR in Tacloban City and its national office in Manila, Philippines. Because of the limited copies, interested stakeholders find it difficult to get hold of copies of the reports.

With the DA-BFAR FRMP, although not completed as yet, there are indications that copies of the PCRA reports initiated by the project are now beginning to be available at the municipal level. At the same time, copies of the Post FSP REA surveys are also made available to the municipal project sites. There are plans to publish the said reports.

FRMP is currently developing a software, Philippine Fisheries System 2 (PhilFish2), to house the data generated by the project which include the Post REA and Socio Economic Assessments (SEA) results for Sogod Bay. The software utilizes Microsoft SQL platform. PhilFish2 is a national database linked to the municipal and regional fisheries management units via the internet facilities (Figure 4). The core of the system is on fisheries management but it also incorporates other biophysical parameters as well as socio-economic indicators.

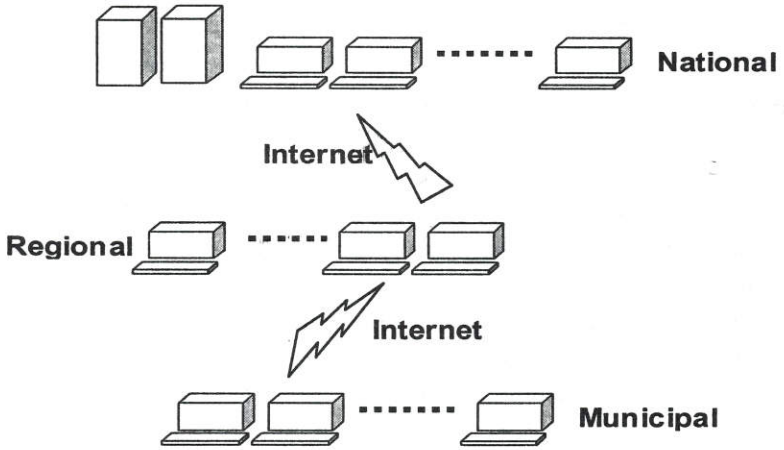

Figure 4. Conceptual data and communication architecture of PhilFISH2 (modified from Gayanilo and Razon, 2001)

The management information system that FRMP is striving to develop is a laudable project if ever it gets to operate. It is envisioned to provide the technical information that is required for the management of the fisheries from different levels. BFAR has been mandated by the Philippine Fisheries Code (Republic Act 8550) to conduct fish stock assessments to determine the maximum sustainable yields of economically important species. With this system, fish stocks could better be monitored.

The system's future, however, is facing some difficulty. First, the software platform that is being used is expensive and not readily available. Interview with BFAR personnel who were trained in data management reveals that the software has not been installed in the computers distributed for that purpose. In addition, most of the municipalities do not have internet communication facilities. There were also some problems in the standardization of data sets considering that most of the Post REA activities have been conducted ahead of the system development and therefore may face some incompatibility.

Conclusion and Recommendations

Biophysical data sets continue to be generated in support of ICM initiatives. They provide baseline information necessary to substantiate issues that will have to be addressed, as well as help prioritize specific initiatives.

However, the biophysical data generated are underutilized. Generally, the flow of information stops in the planning stage. This problem can be attributed to the difficulty in accessing the information, the lack of perceived need for the information, or the lack of technical know how in utilizing the information as well as in updating the information.

Technical data sets continue to be needed. Although PCRA allows the community to participate in the generation of

the profile for a particular locality and therefore increases appreciation for the biophysical condition of the area, technical quantitative data sets are still needed.

If there are no secondary sources available, then it becomes imperative to conduct a REA in order to provide a complete baseline information. As experienced in Negros Oriental, legislation and the establishments of marine reserves are very much dependent on technical reports.

A data-based decision-making process should be inculcated. There are indications that the extent of use of the biophysical data is dependent on the need and demand for these. For instance, for a marine reserve to be established, a survey of the reef in terms of diversity and condition is needed as attachments to ordinances. Red tide monitoring is necessary to determine whether the fish ban is to be lifted.

Although extensive profiles have been generated, they remain dormant in the shelves if there is no perceived need and demand for them. This situation may be attributed to the absence of incentives for data-based decisions which will offset the cost of generating and updating biophysical information. For instance, the granting of permits by local government units to development projects at present is not tied to the Environmental Compliance Certificate requirement of the DENR through the Environmental Impact Statement System (Presidential Decree 1586). In most cases, if not questioned by stakeholders, the mayor's permit suffices and gives developers the nod to implement development. The use and demand for the biophysical data are reactive in nature rather than proactive. There is thus a need to advocate for an "informed" decision-making among local government units.

Municipal personnel should be trained on how to use the data and update the information. The extent of use of the biophysical data is also limited by the institutional arrangements. In most cases, there are no technically trained people in the local government who can effectively interpret the biophysical data set

and provide advice to the administrators. Most of the local government units rely on the PRMDO and the regional offices of national government agencies for technical support. Consequently, there is a need to strengthen the technical capabilities of the local government and perhaps hire a technical person to specifically address the needs of coastal resources. At present CRM activities are placed under the Municipal Agriculture Office which is already overwhelmed with land-based agricultural needs.

Regularly updating and making accessible of biophysical data sets to the stakeholders. The publication of profiles and the establishment of the electronic municipal database is one factor that made efficient the access and retrieval of information.

The MCD developed by CRMP is a system that can address the basic database requirements. It uses a platform that is readily available to most computers. If regularly updated, its use can be sustained. However, the software is also limited and customized to CRMPs needs. As the information needs grow, it might be a worthwhile venture to invest in a more expanded information system. In developing the profiles, CRMP utilized the Geographical Information System (GIS) mapping tool. The maps generated by the system have sparked interest among local government heads for their coastal resources.

Attempts have been made earlier to develop a GIS for the province but these were not sustained due to budgetary constraint and the lack of need for it. At present, the region-based GIS is in Cebu City. As the need for CRM matures, the need for the system also grows and will soon require a locally-based institution to meet the demands in the future. Perhaps an academic based GIS can be established to serve the needs of the province, maximize its potential, and in the long run sustain its operation.

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LINKS BETWEEN ENVIRONMENTAL CONDITION AND INTEGRATED COASTAL MANAGEMENT SUSTAINABILITY

Patrick Christie, Alan T. White, Brian Stockwell, and Renato Claro Jadloc

ABSTRACT

Integrated coastal management (ICM) is practiced throughout Asia with the support of millions of dollars. Unfortunately, many management regimes are not sustained beyond project termination and withdrawal of external technical and financial assistance. This study reports on the impacts of ICM on coral reefs and the hypothesized links between changes in coral reef conditions due to such management regimes and management process sustainability. The study demonstrates that ICM has had positive impacts on coral reefs at one of two study sites in the Philippines. ICM commonly utilizes marine protected areas (MPAs) as a management tool. The MPAs in Mabini are actively managed and have improved fish diversity and abundance. However, these MPAs are contested and at risk of collapse due to conflicts between fishing and tourism constituencies. The second site is without MPAs (Bais Bay) despite considerable investment of time and funding. The environmental condition appears to have stabilized in Bais Bay, but this condition is not readily attributable to ICM.

An analysis of interviews suggests that the condition in the environment is not directly linked to ICM process sustainability as measured by whether stakeholders are motivated to support or participate in ICM over time. Rather, each stakeholder is motivated by the extent to which the particular ICM process agrees with their worldview or helps them meet social and economic goals. The condition of the environment is important to diverse stakeholder groups, but for different reasons.

This paper is part of a larger research project, the ICM sustainability research project, investigating factors impacting ICM process sustainability in the Philippines and Indonesia.

Introduction

One of the main goals of ICM is to improve the management and, therefore, the condition of coastal environments (Cicin-Sain and Knecht, 1998; Kay and Alder, 1999). ICM projects use a variety of management tools to reach this goal. In the Philippines, environmental education, community organizing, marine protected areas (MPAs), and alternative livelihood schemes are some of the most common tools employed. MPAs are the focus of this study considering that this has been the preferred management tool in the Philippines.

Intact coastal ecosystems provide an array of services to human populations. Coastal ecosystems are high in biodiversity and provide nursery habitats for many marine species. There are surprisingly few studies that demonstrate the impacts of ICM on coastal ecosystems. This is likely due to the challenges associated with assessing large areas over time. This is unfortunate since supporters of ICM—including donors, practitioners, and local community members—share expectations that environmental conditions will improve through ICM. Therefore, their long-term support for ICM may be tied to measurable positive improvements in environmental conditions. There are no known studies that explore whether ICM's environmental impact, either positive or negative, may have induced greater levels of stakeholder commitment to ICM, thereby influencing ICM sustainability.

Personal commitment to a social change process, including ICM, lies at the center of ICM process sustainability (Morris and Mueller, 1992). Without a constituency behind ICM, there is little reason to believe that ICM would be viable in the long term (Olsen, 1993). It is a plausible that changes in environmental condition, whether positive or negative, may motivate people to support ICM and become directly involved. Research by Pollnac et al. (2001) has demonstrated that perceived environmental problems are associated with marine protected area success.

While ICM projects impact a wide variety of coastal ecosystems in the Philippines, this study only considers whether

ICM has had a notable impact on coral reef ecosystems in two case study sites, Bais Bay, Negros Oriental and Mabini, Batangas. Coral reefs were chosen as the focus of this research considering data availability and ICM project goals. Research efforts have focused on documenting:

1. if there is an observed change in coral reef conditions and associated fish populations in the two case study sites;
2. if local stakeholders perceive trends in environmental conditions;
3. what motivates different groups of stakeholders to participate in ICM and whether this is related to ICM sustainability;
4. and whether perceived changes in the environmental conditions appear to impact stakeholder commitment and, therefore, the sustainability of ICM processes.

Sites and Methods

To investigate the possible linkage between biological impact and ICM process sustainability, both biological and social research were conducted. First, impacts of ICM on coral reef condition were documented using both direct observations and published historic accounts. As a second step, social research explored perceptions of environmental changes. Finally, the motives to support ICM were documented with an eye to determining whether environmental condition was a key variable determining long-term commitment. Since ICM involves a variety of stakeholders, including government officials, practitioners, academics, local coastal inhabitants, each of these types of people were important informants.

The two study sites for this inquiry were the Municipality of Mabini, Batangas on the island of Luzon (the area commonly referred to as "Anilao") and Bais Bay on Negros Oriental. In Mabini, the focus was on Arthur's Rock and Twin Rock MPAs, where fishing is prohibited, and nearby non-MPA areas that are open to fishing (Figure 1). Non-MPA sites are exposed to similar physical conditions (e.g., wave action, rates of sedimentation) as

the MPA sites. Longitudinal substrate data were available only for one non-MPA site, White Sand Reef. Longitudinal fish data from three non-MPA areas (White House, White Sand, and Selo Reef) were pooled and compared to MPA sites. For general information on the Mabini area, please see the introduction to the case study site.

In Bais Bay (Figure 2), Campuyo and Arboles Point were evaluated. Campuyo is at the mouth of the North Bay. Sites at Arboles Point were south of the Talabong Mangrove Reserve. Bais Bay, Negros, covers approximately 54 km^2 (5,430 has) of which an estimated 200 ha are coral reefs (or 3.7% of the two bays) (Calumpong and Luchavez, 1997). This is a conservative estimate. Campuyo is along the entrance and northern shore (Campuyo Point) of North Bais Bay which is where most studies have been conducted (Alcala, 1977; Alcala, et al., 1991; Alcala et al., 1994, Calumpong et al., 1997). The study sites were within coral reef areas that had been nominated as sanctuaries, but never enforced.

Biological research methods consisted of monitoring of fish populations and coral substrate in the two case study site areas.

Substrate Cover. Consistent with Reefcheck methods (Hodgson, 2000), scuba surveys were conducted using 50-m transect lines laid parallel to the reef drop-off (in depths ranging from 5 to 7 m) and closely along the substrate. The substrate immediately below the transect-line was classified and recorded every 0.25 m using descriptive categories such as: rubble, block, living soft coral, living hard coral, and dead standing coral. The incidence of each substrate type was translated into percent of substrate cover for each category. An average of twelve 50-m transects were conducted at each site, therefore percent substrate coverage calculations are based on an average of 2,400 observations per site. Snorkeling surveys estimating substrate coverage in shallow reef areas were not conducted.

Fish Species Richness and Density. These data were collected by recording the diversity and abundance of fish in a 500 m^2 area estimated by using a 50 m transect line as the upper boundary laid at approximately 7 m depth parallel to the reef crest. The observers swam 10 m along the line, then down the slope and 10 m parallel to the line and then back to the line in this pattern until reaching the transect end. This procedure was repeated in the opposite pattern back to the beginning of the transect line. The number of individuals per species was noted employing logarithmic categories for those species with large numbers of individuals. The families surveyed were: Surgeonfish (Acanthurids)*, Rabbitfish (Siganids)*, Groupers (Serranids)*, Snappers (Lutjanids)*, Sweetlips (Haemulids)*, Emperors (Lethrinids)*, Jacks (Carangids)*, Fusiliers (Caesionids)*, Breams (Nemipterids)*, Goatfish (Mullids)*, Parrotfish (Scarids)*, Rudderfish (Kyphosids)*, Triggerfish (Balistids), Butterflyfish (Chaetodonids), Angelfish (Pomacanthids), Wrasse (Labrids), Damselfish (Pomacentrids). Anthids (family Serranidae) and *Zanclus cornutus* were also counted. The twelve fish families marked with asterisks are commonly targeted by fishers due to higher market values and recorded as "target species."

In Mabini, fish surveys were conducted in 1993, 1995, 1997, and 2001, but were not consistently conducted during a particular month, which may result in some variability associated with seasonal fluctuations of several fish families. Replicates also varied over years, with the fewest in 1990 (n=2) and the greatest in 2001 (n=10). Fish and substrate surveys in Bais Bay were conducted in September 2001 and April 2002. Replicates for fish and substrate surveys ranged between 4 and 10 transects per site. All averages calculated from fish abundance data are reported with 95% confidence intervals. Other studies, which are cited, have estimated standard errors associated with averages.

In addition to biological assessments, in-depth, semi-structured interviews were conducted with eighteen key informants in September 2001 to investigate a possible causal relationship

between environmental condition and ICM sustainability. Informants, all of whom were involved in ICM, were hotel owners, resource users, ICM practitioners, and academics. After basic information such as position, age, and role in ICM was collected, informants were asked to discuss their perception of the condition of the coastal environment and if its condition was changing for the better or worse. Informants were then asked why they were involved in ICM. This open-ended question was asked of the initial few informants. Based on responses, the interview guide was augmented to include, in addition to this open-ended question, some probing questions that were formulated based on responses from prior informants. After recording any initial responses to the open-ended question, informants were asked if they were motivated to participate in ICM primarily a) out of concern for the condition of the environment, b) to improve their or their family's economic condition, or c) to strengthen community groups. Respondents were then categorized as belonging to a particular group motivated to participate in ICM based on environmentalist, economic, or social motives. Finally, they were directly asked whether they felt that changes in environmental condition affected their commitment to ICM.

Pseudonyms were assigned to informants and interviews were analyzed with ATLAS.ti software for emerging themes associated with: 1) perceived changes in environmental conditions and 2) motives for participating in ICM. This software allows for the coding of interview data into categories which are then analyzed with search commands and theoretical memo writing. Environmental quotes were coded as demonstrating "environmentalist motives" to participate in ICM if they expressed a desire to use ICM to protect organisms or ecosystems, maintain ecological processes, or address general environmental issues. Those quotes identifying a personal economic interest or economic benefits for others were coded into the "economic motives" category. Quotes coded as identifying "social motives" expressed a belief that ICM helped meet basic human needs such as housing or food or strengthened community groups.

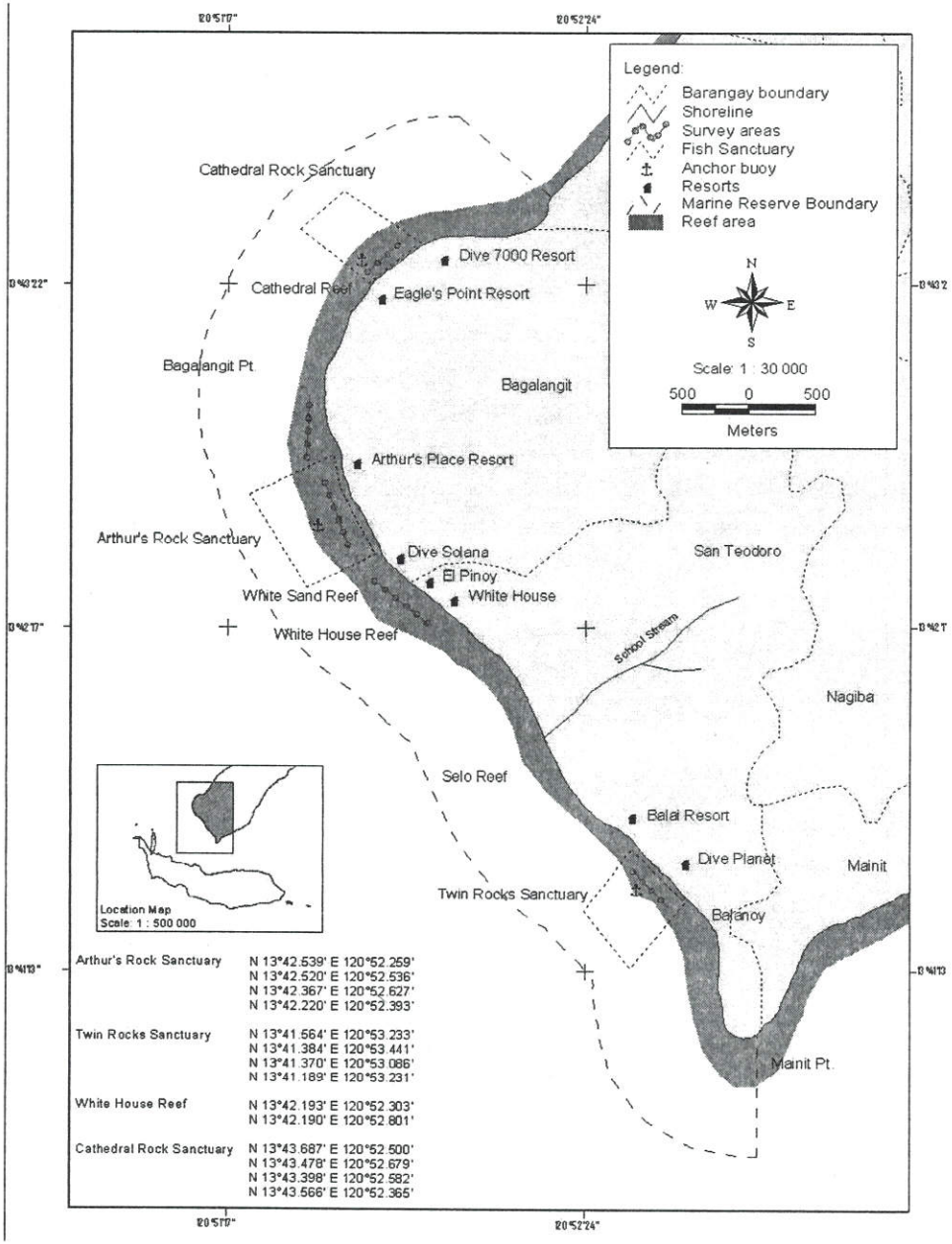


Fig. 1 Map of Mabini

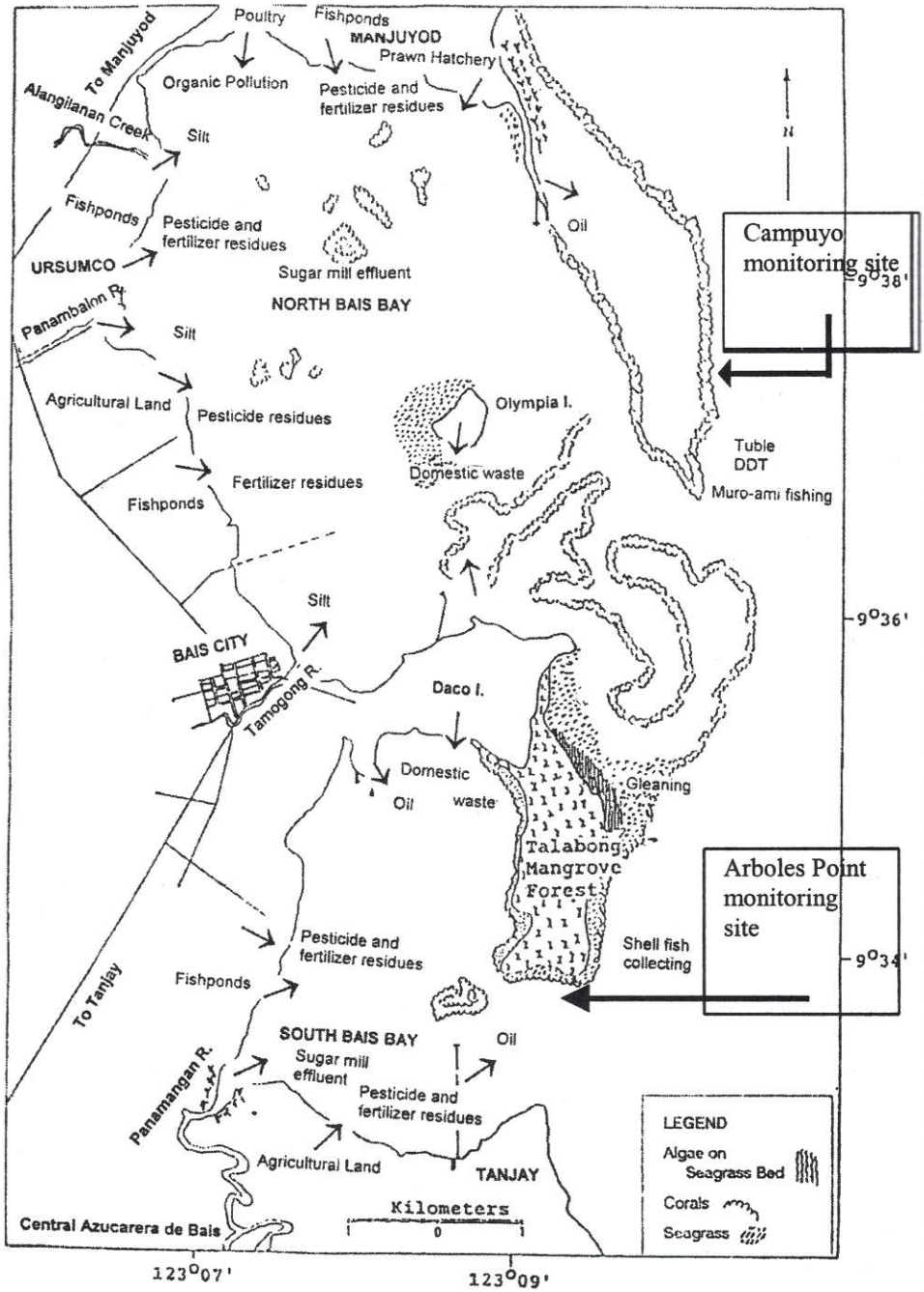


Fig. 2 Map of Bais Bay

Condition of Coral Reefs in Mabini and Bais Bay

Mabini

As highlighted in the introduction to the case study sites, the coastal area of the Municipality of Mabini is used for fishing and tourism activities (Table 1). Within the last 30 years, there has been a rapid growth in tourism, particularly dive tourism.

Coral reef substrate condition. The coral reefs in the Mabini area have either stabilized or improved since 1993 (when researchers started collecting substrate data). The following is a summary of the monitoring results.

- There has been an improvement in hard coral cover in Arthur's Rock Sanctuary, particularly in the shallow reefs (increasing from 31 % to 61%) (Figure 3).
- There has been a decline in soft coral cover in shallow and deeper areas in Arthur's Rock Sanctuary.
- Hard coral cover has increased in both shallow areas (from 39% to 58% coverage) and in deeper areas (from 13% to 31%) in the Twin Rocks Sanctuary (Figure 4).
- Soft coral cover has declined slightly in shallow and deeper areas within the Twin Rocks Sanctuary.
- Hard coral cover for White Sand Reef, a non-MPA site located just south of Arthur's Rock MPA and approximately 1.5 kilometers from Twin Rocks MPA, has remained between 20-30% in deeper areas, but has declined from 41% to 22% in shallow reefs between 1995 and 2001 (Figure 5). This area was severely affected by coral bleaching in 1998 when water temperatures were abnormally high and continues to be impacted by siltation and algae growth.
- Hard coral cover for White House Reef, a non-MPA site located approximately 500 meters south of Arthur's Rock MPA and 1.2 kilometer north of Twin Rocks MPA, declined from a peak of 37% in 1995 to 12% in 2001 (Figure 6). This area was also impacted by bleaching in 1998 and is currently impacted by siltation and algae growth.

Table 1. Information on various activities observed during survey day in Mabini area, May 1993, March 1995, June 1997 and April 2001.

SITE INFORMATION	ARTHUR'S ROCK SANCTUARY				CATHEDRAL ROCK SANCTUARY		TWIN ROCKS SANCTUARY				WHITE SAND REEF		
	1993	1995	1997	2001	1995	2001	1993	1995	1997	2001	1995	1997	2001
Type of reef	Gradual slope				Pinnacle rock		Steep slope				Flat		
Site description	Sheltered				Sheltered		Sheltered				Sheltered		
SITE CLASSIFICATION													
	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no
	no	no	no	no	no	no	yes	yes	yes	yes	no	no	no
Nearby resort	yes	yes	yes	yes	yes	yes	no	no	no	yes	yes	yes	yes
	no	no	no	no	no	no	yes	yes	yes	yes	yes	yes	yes
FISHING ACTIVITY													
No. of fishing boats w/in 500 m during monitoring	0	2	1	2	0	0	0	0	0	0	0	0	1
No. of gleaners for food w/in 500 m during monitoring	1	0	0	2	0	0	0	0	1	0	1	1	1

TOURISM ACTIVITY												
No. of boats anchoring w/in 500 m	10	15	10-15	10-15	2	6	4	9	5	10	2	3	4
No. of anchor buoy	1	1	1	2	1	1	1	1	1	1	0	0	0
No. of divers observed w/in 500 m	20-30	40	20	20	10	20	20	45-50	30	30	6	12	5
% of nearby coast build-up w/ structures	50	60	75	75	75	75	20	20	20	30	10	15	20
OTHER STRESSES AND THREATS													
No. of large ships w/in sight	~	~	~	2	~	1	~	~	~	3	~	~	1
No. years since last typhoon (>100 kph)	5	7	9	12	7	12	5	7	9	12	7	9	12
No. years since last bleaching incident	~	~	~	3	~	3	~	~	~	3	~	~	3
% bleached coral area	~	~	~	<5	~	<3	~	~	~	<10	~	~	>20
~ No data													

Figure 3. Change in mean percent of reef substrate as observed in Arthur's Rock

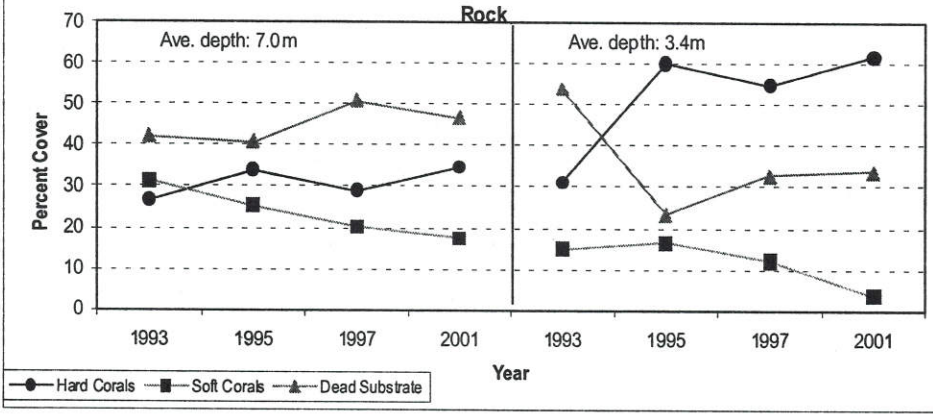


Figure 4. Change in mean percent of reef substrate as observed in Twin Rocks.

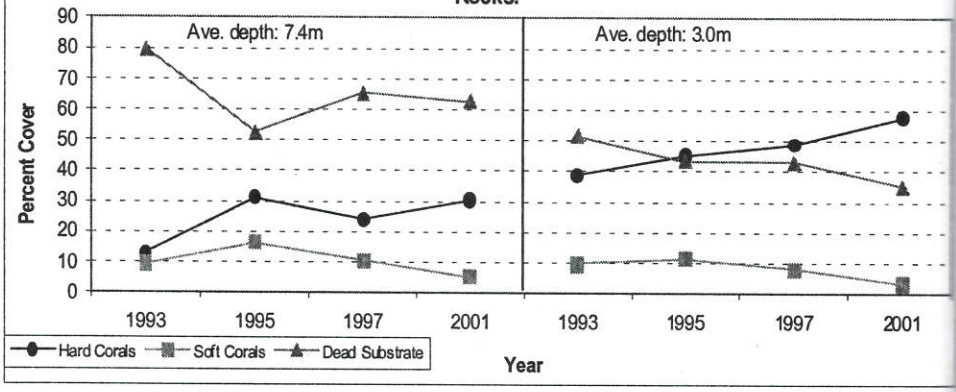
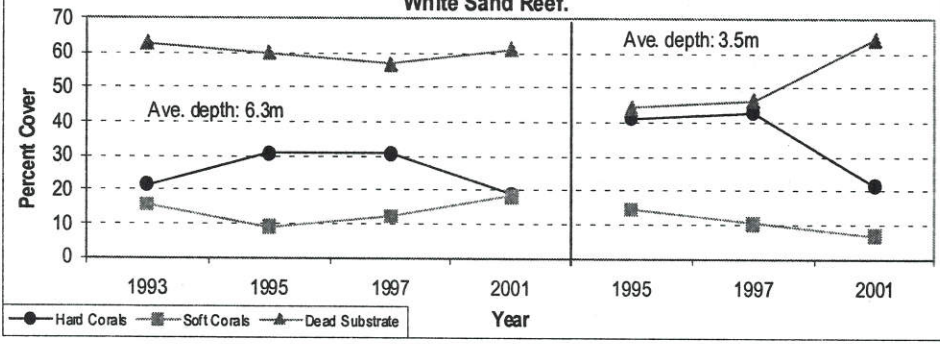
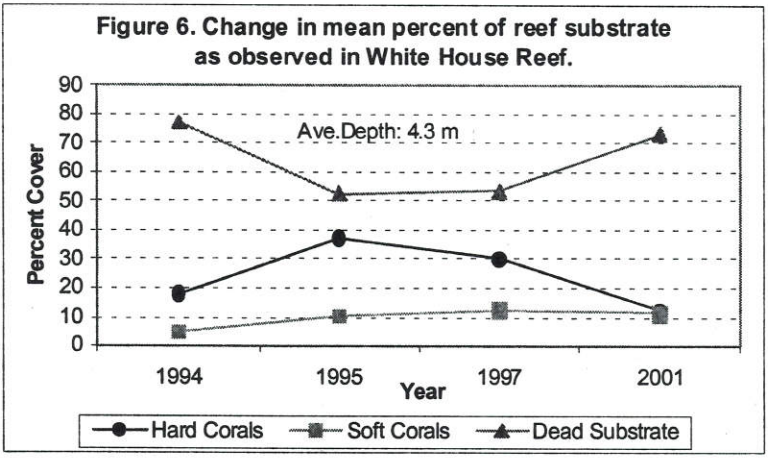


Figure 5. Change in mean percent of reef substrate as observed in White Sand Reef.





Note: No snorkeling data collected on the shallow portions of White House Reef.

As shown by research on fish diversity and abundance for Mabini, fish populations have stabilized or modestly improved in the Mabini area—at least in the areas within or nearby enforced MPAs. The general trends are the following:

- The abundance of fish outside MPAs has remained relatively constant since 1995, but target fish abundances outside the MPAs are significantly lower than abundances within enforced sanctuaries such as Twin Rocks.
- There has been a significant increase in the abundance of non-target fish in Twin Rocks.
- The abundance of fish at Arthur's Rock has varied significantly from year to year.
- Small, planktivorous species are the most numerous.
- There has been a significant increase in fish diversity inside MPAs since 1995.
- The most significant increase in fish diversity (target and non-target families) has been within Twin Rocks sanctuary (from an average of 26.5 +/- 8 fish species in 1990 to 61.8 +/- 6 species in 2001).

- The number of fish species at Arthur's Rock sanctuary has fluctuated for non-target species and target species from 1990 to 2001, with a modest increase between 1997 and 2001.

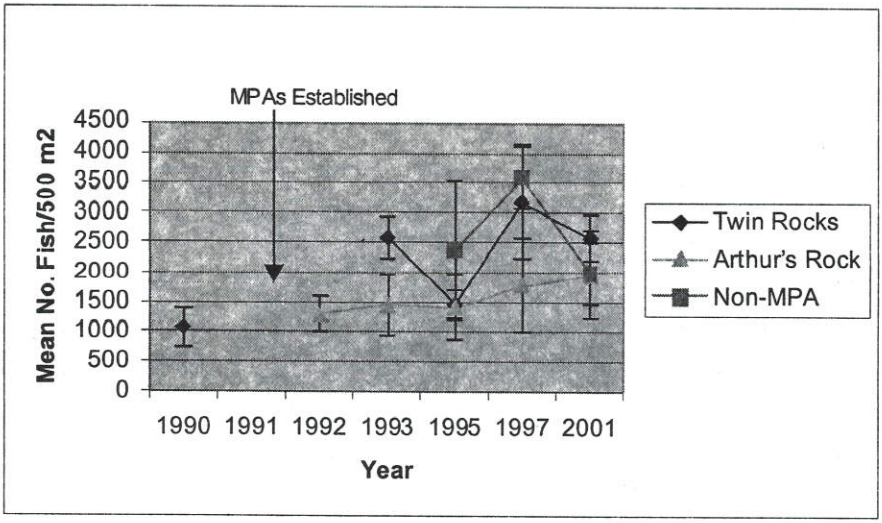
These findings are based on the following plots and two-way analysis of variance that demonstrate whether there are significant changes in abundance or diversity over time and/or significant differences between sites (George and Mallery 2001). Each plot indicates when the MPAs were legally established in the area (November 1991) and when resorts began to enforce the Twin Rocks sanctuary. The now deceased owner of Arthur's Dive Resort oversaw the Arthur's Rock MPA site. However, recent enforcement has been lax.

Figure 6 demonstrates that fish abundance for the two MPAs and the nearby non-MPA area has fluctuated over time and no discernible trend that continued until 2001. Fish abundances were significantly higher in 1997 than in previous years resulting in a significant difference in abundance over time (two-way analysis of variance: time, $p=0.02$). There is also a significant difference between sites (two-way analysis of variance: site, $p<0.01$). Interestingly, Arthur's Rock has significantly fewer fish than either Twin Rocks (Scheffe posthoc test, $p<0.01$) or non-MPA sites (Scheffe, $p=0.012$). Fish abundance is gradually increasing in Arthur's Rock.

It is notable that one of the general goals of MPAs, to increase fish abundance outside the no-take areas, has not been met. This finding agrees with others studies (Christie et al., 2001), but disagrees with other studies in Florida (Roberts et al., 2001) and in Apo Island (Russ and Alcala, 1996) where spillover has been documented. Without long-term fishing effort and yield data, it is uncertain if: 1) exported fish are being caught at a sustainable rate and therefore abundances will fluctuate between 2000 and 3000 fish per 500 m^2; 2) fishing effort is unsustainably high and possibly increasing so as to actually reduce fish stocks despite the MPAs; or 3) the MPAs are too small to have much effect outside

the no-take areas. It is plausible that without fishing effort control, many fishers will be attracted to fish near the boundaries of the no-take areas—especially if fishing resources elsewhere are in a state of decline. The general state of fish populations in the wider Anilao area has generally stabilized, however, without any consistent downward trends (White et al., 2001).

Figure 6. Fish abundance (all spp.) change over time (mean +/- 95% confidence interval). Two-way analysis of variance for 1995 to 2001: time, p=0.02; site, p<0.01; time X site, NS. N>5 per site.



There has been a marginally significant increase in target species fish abundance since 1995 (Figure 7, two-way analysis of variance: time, p=0.065). There is a significant difference between sites (two-way analysis of variance: site, p=0.033), with Twin Rocks as significantly different from non-MPA sites (Scheffe, p<0.01) but not significantly different from Arthur's Rock (Scheffe, p=0.195). Twin Rocks target fish abundance in 2001 is 280.9 (+/- 134) individuals per 500 m^2. Arthur's Rock target fish abundance is not significantly different from non-MPA sites (Scheffe

posthoc test, p=0.403). Target fish abundance has remained constant for the non-MPA sites since 1995. Again, this is an indication that local fishers are likely catching any "spill-over" from the MPAs. The greatest increase in target fish abundance for Twin Rocks took place between sampling in 1997 and 2001. In 2000, the owners of a nearby resort assumed enforcement of the Twin Rocks and have, reportedly, been very strict.

Figure 7. Target fish abundance change over time (mean +/- 95% confidence interval). Two-way analysis of variance for 1995 to 2001: time, p=0.065; site, p<0.05; time X site, NS. N>5 per site.

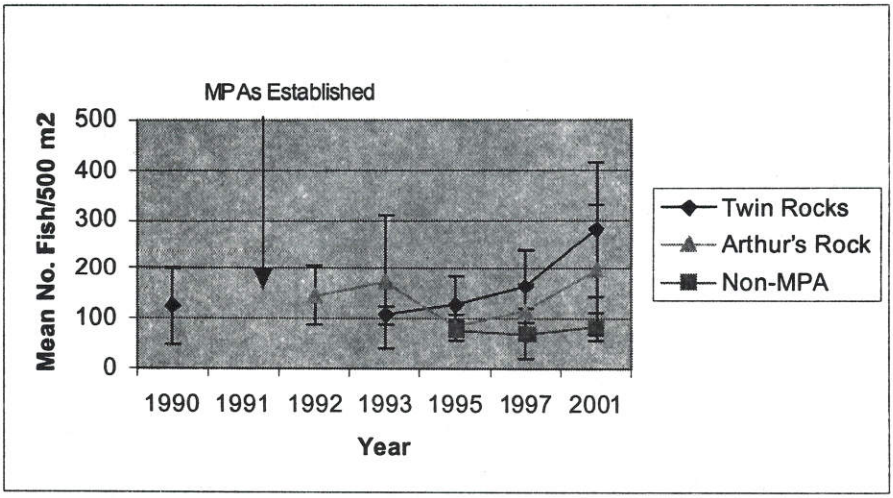
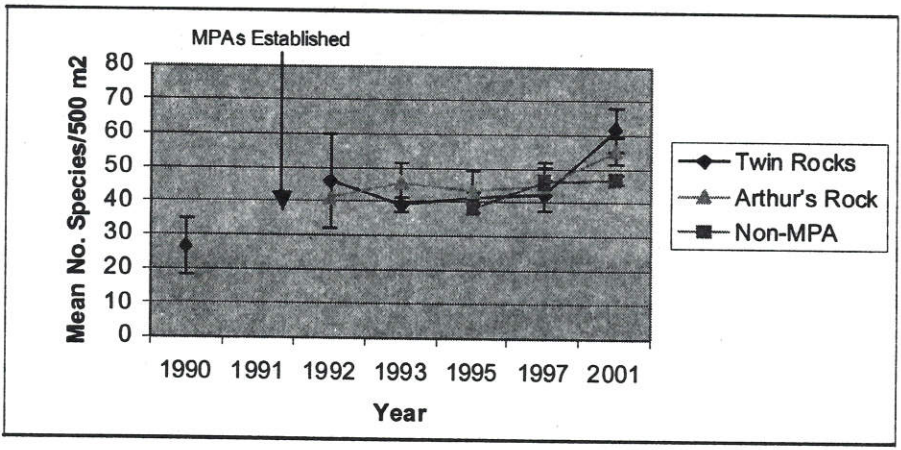


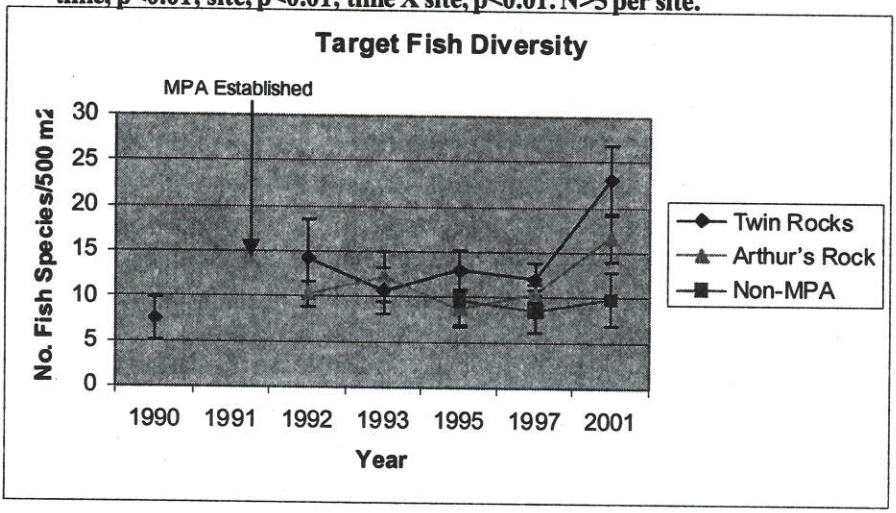
Figure 8 shows that there been a significant overall increase in the number of fish species in the area from 1995 to 2001 (two-way analysis of variance: time, p<0.01). Twin Rocks has significantly more species than non-MPA sites (LSD post hoc test, p=0.027). Fish biodiversity is clearly increasing in the area with significantly more species in 2001 than in 1997 (Scheffe, p<0.01) and 1995 (Scheffe, p<0.01).

Figure 8. Fish species diversity change over time (mean +/- 95% confidence interval). Two-way analysis of variance for 1995 to 2001: time, p<0.01; site, NS; time X site, NS. N>5 per site.



As with overall fish diversity, target fish diversity in the area has generally increased over time with a significant increase between 1997 and 2001 (Figure 9, Scheffe, p<0.01). Twin Rocks has significantly more target fish species than Arthur's Rock (Scheffe, p<0.01) and non-MPA sites (Scheffe, p<0.01). This is likely due to the strict enforcement of the Twin Rocks MPA.

Figure 9. Target fish species diversity change over time (mean +/- 95% confidence interval). Two-way analysis of variance for 1995 to 2001: time, p<0.01; site, p<0.01; time X site, p<0.01. N>5 per site.



From 1991 to 2000, local residents from fishing communities played a greater role in the management of Twin Rocks MPA. Neither fish abundance nor fish diversity increased over this period of time. From a biological perspective, as measured with these methods, conditions have improved at Twin Rocks sometime between 1997 and 2001. The most plausible explanation is the imposition of a strict enforcement regime by a local resort owner in 2000. However, fish abundance and diversity is increasing for Arthur's Rock as well, despite the fact that this MPA is not as strictly enforced as Twin Rocks. This may be due to the general decline of illegal fishing in the area. Fish diversity and abundance is generally higher in MPA areas than non-MPA areas. The only exception is the case of high level of abundance for non-target fish species in non-MPAs, possibly due to the lack of predatory fish that are targeted by fishing.

The trends in the local fishery are complex and little data exist. The establishment of the small MPAs in the area is likely improving yields and fish abundances near these MPAs do not appear to be declining. Abundances of target fish, however, are quite low with none of the 9 non-MPA sites that were surveyed in 2001 having densities higher than 100 individuals per 500 m2 (White et al., 2001). Overall, the abundance of large individuals of target fish species is low in most parts of the Philippines. The vast majority of fish in transects outside the MPAs are damselfish (Pomacentrids) or ferry basslets (Anthids), which are small planktivores. Fishing effort, in general, is not regulated, although it is plausible that fishers are being drawn into the tourism sector and away from fishing. It is equally plausible that the area is drawing fishers from elsewhere.

There is continued effort to improve coastal management in the area. Another MPA was recently established on Tingloy Island. The cessation of rampant illegal fishing, which had dramatic negative impacts in the area until the mid 1990s, has probably allowed for either a slow recovery or at least stabilization of coral reef conditions. Pre-illegal fishing longitudinal data do not exist to

determine whether this is the case. Local informants maintain that this is the case and mainly due to patrols by local *Bantay Dagat* units supported by World Wildlife Fund-Philippines and the local municipal government.

Bais Bay

Calumpong and Serate (1994) estimated the total area of coral reefs in the bay to be 200 ha or 3.68% of the bay. The main reefs areas are along the entrance and northern point (Campuyo Point) of North Bais Bay and surrounding the Talabong Mangrove Reserve. Fish and substrate surveys of the Bais Bay coral reefs indicate that the reefs are degraded by siltation and overfishing. Illegal fishing with explosives has reportedly declined, but cyanide fishing continues. Historic monitoring reports note impacts on Bais coral reefs including muro-ami and dynamite fishing in 1988 (Alcala, et al., 1991), a typhoon in 1990 (Alcala, et al., 1994), and sedimentation (Alcala, 1977; Alcala, et al., 1991; Alcala, et al., 1994; Divinagracia, et al., 1997).

Unlike Mabini, no longitudinal data set developed with consistent methods exists for Bais Bay fish abundance and diversity.

Coral reef substrate condition. Hard coral cover in Bais differed widely in the two sites that were monitored, probably as a result of both oceanographic conditions and human impacts. In Campuyo, a site with a proposed MPA that is exposed to current and clear water, living hard coral cover was "fair" (according to the rating system used by Gomez, et al., 1991) at 35.7% with soft coral coverage of 2.9% (N=13). This finding agrees with the results of the monitoring conducted in 1997 by the Coastal Resources Management Project (Table 2). The CRMP study found Bais Bay to have 91 species of hard corals with massive corals being the most abundant.

Table 2. Percent Living Coral Cover for Campuyo Reef, North Bais Bay from 1977 to 2002.

% Live Hard Coral Cover	Depth	Year	Reference
16.1	N/A	1977	Alcala, 1977
47.2	3m	1987	Alcala, et al., 1991
41.2	3m	1988	Alcala, et al., 1991
45	11m	1989	Alcala, et al., 1994
51	17m	1989	Alcala, et al., 1994
39.5	11m	1990	Alcala, et al., 1994
52.6	17m	1990	Alcala, et al., 1994
50.2	11m	1993	Alcala, et al., 1994
52.3	17m	1993	Alcala, et al., 1994
38.8	3 - 10m	1997	Calumpong, et al., 1997
35.7	7 m	2002	This study

The reefs to the southeast of Arboles Point, where another MPA has been proposed, are heavily impacted by siltation. Hard coral cover was only 17.9% and 0.05% soft coral cover (N=6) placing this site in the "poor" category. This reef is located in South Bais Bay and is protected from currents by the extensive Talabong Mangrove Reserve. It is likely exposed to seasonal runoff impacts from the nearby extensive sugar cane fields. In this area, many formally living corals were dead and covered with silt.

The dominance of massive corals in this site may be determined by siltation rather than wave action since massive corals tend to survive in silted areas better than branching corals (Alcala, et al., 1991).

Interestingly, the hard coral cover in Campuyo site (36%) was similar to that in the MPAs in Twin Rocks (31%), Arthur's Rock (35%), and slightly higher than in the non-MPA Mabini

sites. As discussed below, despite the similarly in hard coral cover in the Campuyo and Anilao sites, fish abundances and diversity were significantly lower in Campuyo sites.

Fish abundance and diversity. Average overall fish abundance at the Campuyo site (Figure 2, Table 3) was 1956 (+/ - 596) individuals per 500 m^2 with damselfish (Pomacentrids) comprising 65% of this total. Target fish abundances were low with an average of only 160 (+/-156) individuals per 500 m^2. 45 (+/- 6) species of fish per 500 m^2 were identified. Using similar transect methods, Luchavez and Divinagracia (1994) recorded lower species richness at 27.5 ± 4.3 (1 S.E.) per 500 m^2 and a higher abundance estimate of 3,992 fish ± 1,269 (1 S.E.) 500m^2 in Campuyo (Table 3). It is unclear why Luchavez et al., (1997) abundance estimates were notably higher.

Table 3. Number of fish species, species richness, and fish abundance per 500m^2 for Campuyo Reef from 1987 to 2001.

Year(s) of study	# of species / families	Mean Species Richness (+/- 1 SE)	Mean Abundance (+/- 1 SE)	Reference
1987-89	135 / 26	N/A	N/A	Luchavez & Alcala, 1992
1990-93	104 / 24	27.5 ± 4.3	3,992 ± 1,269	Luchavez & Divinagracia, 1994
1997	62 / 17	35 ± 3	18,974 ± 3,108	Luchavez, et al., 1997
2001	NA	45.1± 5.8 (95% CI)	1,955.8 ± 596.3 (95% CI)	This study

In the second southern Bais Bay site (Figure 2), locally referred to as Arboles Point, average overall fish abundance was 483 (+/- 291) individuals per 500 m^2 while average target fish abundance was only 54 (+/- 64) individuals per 500 m^2. This is significantly lower than the abundance figure reported by Luchavez et al. (1997) with 4,412 ± 2,054 (1 S.E.) fish per 500 m^2, but this

may be due to differences in methods or sampling location within this area. Species richness in this site in 2001-2002 with an average of 28 +/- 5.0 species of fish per 500 m^2 was lower than Campuyo in the same year and slightly lower than past estimates of 32 (+/- 1) species of fish per 500 m^2 by Luchavez et al. (1997).

It is notable that, in general, fish abundance and diversity were higher in no-take areas in Mabini than in Bais Bay. This could be an indication of the impacts of management or a difference in productivity of these reefs. Fish species diversity at the Bais Bay Campuyo site (45.1 +/- 5.8 per 500 m^2) is significantly lower than fish species diversity in the Twin Rocks MPA (62 +/- 6 species per 500 m^2), but similar to the Anilao non-MPA sites (47 +/- 9 species per 500 m^2) in 2001. Similarly, Campuyo target fish abundance in 2001-2202 at 160 (+/- 156) individuals per 500 m^2 was lower than Twin Rocks target fish abundance at 281 (+/- 134) individuals per 500 m^2, but higher than non-MPA sites in Mabini at 84 (+/-28). These differences are not statistically significant due to sample variance. That species diversity and target fish abundance are highest within the no-take area in Mabini and that Campuyo has comparable diversity but higher target fish abundance than non-MPA sites in Mabini suggests that differences in diversity and abundance are due to the presence or absence of a no-take MPA, rather than differences in productivity.

Lower abundance and diversity figures for Arboles Point appear to be due to differences in natural reef productivity—it is in a sheltered cover near mangroves—and increasing sediment loads that are killing the corals. The fish species diversity and target fish abundance for Arboles Point at 27.8 (+/- 5.0) species of fish per 500 m^2 and 54 (+/- 64) target fish per 500 m^2 are significantly lower than any Mabini site. During surveys, the amount of silt on the Bais Bay nearshore reef was notable and is likely exacerbated by deforestation and mono-culture sugar production in the area. The Campuyo site, if protected, would likely result in reef conditions similar to those found in Twin Rocks or nearby Apo Island.

Fisheries condition. The Bais Bay fishery is considered overexploited (Luchavez and Abrenica, 1997). No new fisheries data were collected as part of this study. However, a review of previous studies is helpful in determining if ICM activities have impacted environmental condition. Three major studies (ERMP, 1992; Alava et al., 1997; COE-CRM, 1998) on the fisheries of Bais Bay used fisher interviews, catch enumeration at landing sites, and enumeration of fish sold in the public markets. These studies demonstrate that there has been a continuous increase in fishing effort during the 1990s, but that catch per unit effort seems to be remaining stable.

Perceived condition of the environment in case study sites

In addition to field observations, this study collected information with in-depth interviews with key-informants to assess perceived trends for the environment. Results indicate that opinions of informants are distinct and are site and resources-specific.

Mabini

All five informants, with detailed knowledge of Mabini's reefs, commented that there are more fish in the area now than 10 years ago and that there are increased numbers of large, predatory fishes and threatened species such as turtles and dolphins. The following are illustrative quotes.

> *Patrick: In the past 10 years, has the condition of the coral reefs and sea changed?*
> *Local fisher: If we are going to compare it to before, in the past 10 years, there's a big change. There are new species of corals now. There's a big improvement.*
>
> *(9/7/01)*
>
> *Patrick: Could you tell me how, in your opinion, the condition of the marine environment has changed in the last 10 years?*

> *NGO-fieldworker: I've been here for 3 years and I think it has improved a lot. As a community organizer, I've been hearing feed back from the communities—that they are seeing big fishes like tangigue (mackerel), yellow-fin tuna. And just this year, I personally saw schools of dolphins which I haven't seen since we've started here in 1998.*
>
> *(9/10/01)*

There remain significant coastal environmental problems, however. There is a growing problem with trash disposal, which is frequently thrown into the sea by passenger ships and tourists. Recently, sport divers have organized large-scale annual coastal clean-up activities. During the September 2001 event, hundreds of divers participated and thousands of kilograms of trash were removed from the waters and beaches of the Mabini area.

With the explosion of tourism in the area, erosion caused by road, home, and hotel construction has become a growing concern among informants. Ongoing swidden agriculture on the steep slopes is also likely to contribute considerable silt loads to the marine systems. According to some informants, landslides are common during heavy rains . Local fishers commented on the decline of shellfish populations on beaches fronting resorts due to the construction of hotels and boat landing in some areas. Set-back regulations are either non-existent or poorly enforced. This growth is likely to continue and its impact may be compounded if proposals to extend industrial zones toward Mabini are implemented.

According to local informants, the MPAs in the area are being impacted in a number of ways and management mechanisms are weak. There are growing concerns among some community members and fishers that the three, small marine protected areas are being damaged by diving and boat anchoring. This was supported by field observations. Few anchor buoys exist. Arthur's Rock MPA is no longer strictly enforced. Twin Rocks and Cathedral Rock are protected— but mainly by vigilant resort owners rather than by local fishing community members (as was

originally the case). The case of Twin Rocks is particularly interesting since unilateral enforcement actions by one hotel owner has created considerable tensions with a nearby fishing community. Comments about diving-related damage may be linked to disapproval of hotel owner involvement in MPA enforcement. The controversy is heightened by widespread resentment caused by dive resort owners who ignore an amendment to the MPA management ordinance banning recreational diving inside the MPAs. (See report by Oracion in this issue).

In general, the consensus among informants, confirmed by direct observation, is that the environmental conditions in the Mabini area have improved through the establishment of MPAs and educational efforts. Undeniably, challenges such as impacts from building and trash remain. Also, the MPA management process is currently strained. Nonetheless, informants appreciate the improved condition of the area, especially when compared to other areas in the Philippines.

Bais Bay

Interview results give the impression that the coastal environment in Bais Bay is degraded, but stable. Serious issues, such as siltation due to upland deforestation, remain largely unsolved (Roy de Leon, pers. comm. 2001). As documented by substrate monitoring, large areas of reef are being negatively impacted by sediment loading. Sediment and nutrient loading may be linked to red tide and fish kill events in the area. Regular habitats and water chemistry monitoring with consistent methods is necessary.

The area's fishery is also reportedly stable (Calumpong, pers. comm.) mainly due to the reduction of illegal fishing. Nonetheless, fish abundance levels are greatly reduced from historic levels according to local fishers. There are no regulations in place to control fishing effort. Illegal fishing continues, although at a greatly reduced level than in previous decades. The use of poisons such as cyanide and *tubli* (derived from a plant root)

continues and was raised by a number of informants during interviews. No such activities were observed during monitoring activities.

The transition toward mariculture of seaweeds and milkfish may eventually reduce fishing effort. Seaweed mariculture (primarily Euchema) appears to be increasingly popular in certain areas of Bais Bay. Sally Alcazar (pers. comm.), formerly of the municipal government, feels that this practice is resulting in increased rabbitfish abundances as penned areas prevent fishing.

Mangrove resources appear to be improving after large-scale deforestation in the 1980s for wood and fishpond development. Historically, there were approximately 929.8 ha of mangroves in the area (Calumpong 1994) which were reduced to approximately 264 ha by 1997 (Calumpong, et al., 1997). Transition to gas for cooking, improved enforcement, and reforestation efforts seem to have had positive impacts (Calumpong and Alcazar, pers. comm.).

Motives to Participate in ICM

To investigate the plausible link between environmental condition and ICM process sustainability, information from various sources was collected—from direct observation of coral reefs, published accounts, and interviews. Interviews were used to explore the potential link between this biological information and constituency formation for ICM who are willing to commit resources, including their own time. Personal commitment is offered as a valid measure of ICM sustainability.

Those within the "environmental motives" group participated in ICM out of inspiration from what they perceived as improving environmental conditions or out of concern for declining environmental conditions. Those categorized as members of the "economic motives" group expressed desires to improve personal or family economic conditions through ICM. And those within the "social motives" group wished to use ICM as a means to meet basic human needs such as shelter and food or to strengthen

community groups. Such categorization allowed us to group informants with similar perspectives and to explore trends. People perceive multiple and differing environmental trends and they have multiple motivations and mixes of motivations to participate in ICM, therefore some informants fell into more than one group.

Nonetheless, interesting tendencies are discernible and appear to have implications for ICM process sustainability. Each set of motivations implies different goals, methods, and measures of success for ICM. Depending on an individual's motives for participation in ICM, the interpretation and valuation of tangible biological impacts is likely to differ. The matching of these goals, methods, and measures of success across different stakeholders is likely to impact ICM process sustainability. ICM is a complex process involving a variety of stakeholders that hold distinct motives and goals for ICM. Rationalizing, or at least acknowledging, these distinct motives and perspectives may be important.

Environmentalist motives. The basic texts that describe ICM (Cicin-Sain and Knecht, 1998; Kay and Alder, 1999) are clearly concerned with the state of the coastal environment and profess a sustainable development agenda that calls for rational planning that balances economic development with environmental health. The professionals of the field are influenced by an education that highlights these concerns and an internal "professional culture" that perpetuates this model (Ward and Weeks 1994).

Informants motivated primarily by "environmental motives" are Western ICM practitioners (James and Linda), local area hotel owners (Jerry and Roilo), NGO practitioners (Solita) and academics (Gloria). I categorized informants in this category if they expressed, as their principal motive for participating in ICM, the need to protect ecosystems and biodiversity and other environmental causes.

James is an example of someone informed by aesthetic and ethical concerns for reefs.

James: ... a lot of pleasure in my life comes from seeing a natural environment not being destroyed and being protected in some form for the benefit of people—but benefit in the sense that it is in a natural state...

Roilo, a dive resort owner and self-described "eco-warrior", wants immediate results. He is principally concerned with environmental problems, and tends to divorce these from social considerations.

Roilo: Well, you now the best perspective to take is the perspective of the fish in the corals. You look at, if you were the fish, what's going to be best for you... So, what is important for me is enforcement or prevention or ... reforestation of waterways, clean up. Those are still the issues. Social issues are divorced from actual impacting issues. For me those are secondary...

Solita is a committed, young NGO-worker with a prominent environmentalist NGO and has a self-professed passion for the sea.

Patrick: What is it that motivates you to be involved in this marine conservation work?

Solita: Maybe because of being an environmentalist in nature. I really love the ocean. I'm a diver, I really love seeing those live corals, big fish. Especially when I saw big schools of jacks in Dumaguete. There's this feeling that I really love the ocean. I'm looking forward to seeing it until the future.

Other people who expressed notable environmentalist tendencies expressed the need to care for the environment due to its fragile nature.

Gloria: What I see is every living thing should be taken care of. They cannot save themselves and we must do our part to help save them. It's more

of the bio-centric outlook on nature.

While most informants expressed some form of an environmentalist agenda, the above informants were clearly in favor of protecting the coastal environments for their own sake and so that they may be enjoyed recreationally. Aesthetic, ethical, and ecological reasons speak strongly to these informants and help motivate them to support and become involved in ICM.

Social motives. In a context where basic human needs frequently are not met and where inter-personal relations are fundamental—relevant characteristics of the Philippines—one might expect social motives to participate in ICM to be common. Published accounts also identify the degree to which ICM projects meet basic social needs as fundamental to their success and acceptance by community members (e.g., Olsen and Christie, 2000).

Informants who are motivated by social concerns are: local community leader (Raul), long-term ICM practitioner (James), hotel owner-former social activist (Cristi), former academic/LGU employee (Ning), environmentalist NGO field worker (Jose), academic biologist (Belinda), and Bais area Rotary Club members in Bais. Informants in this category expressed interest in participating in ICM since they perceived it as providing basic needs (e.g., food and shelter) or supporting certain social processes (e.g., conflict resolution or empowerment of communities).

One informant, who is a long-term activist and leader from a Mabini community, expressed interest in maintaining the condition of the environment to maintain fisheries.

> *Patrick: What is the number one reason why you protect the sanctuary?*
> *Raul: In my own opinion, to produce more fish and then to continue the growth of coral reefs. Not for financial reasons. Because someday money might be of little ... value, but the marine*

life is there. It will help us... Because of the abundant environment we can continue our life. Let's say our life is simple. We eat three times a day. And that comes from our environment. That is the basis for why I'm interested to continue the protection of our environment.

Some professionals are concerned about the basic needs of community members who they serve.

Ning: I am not concerned only environmentally but I'm concerned about what will happen to the environment in relation to the needs of the people in the community. Because I could see how poor the people are. They don't even have good shelter. Don't have three meals a day... Most of our lands here are owned by hacienderos (sugar plantation owners), so where will these people go?

Other Filipino ICM practitioners, who are also academics, feel that people and communities are central to the effective implementation of ICM. This informant is pragmatic in that she expresses that without support for and participation in ICM by Filipino society, the likelihood of success is slim.

Belinda: Our society is dependent on the environment. If you look at ICM, ICM actually involves people. You can manage a reef like a pristine reef. That's easy to do because nobody is living there... These resources are also dependent on people for their survival because we are the major agents of destruction and development... We know that every single thing in this world has a right to exist but we are very concerned with our survival and our survival depends on the environment.

How people choose to work with coastal communities within the framework of ICM is distinct. For example, the perception—and therefore level of interaction—is quite different for wealthy

tourists volunteering time for a beach clean-up or for activists working on a long-term basis in solidarity with communities. For example, the following quotes are from affluent members of Bais Bay society during an interview conducted at the house of a sugar plantation owner following a morning of coastal clean-up. During the morning's clean-up activities, these informants had directed, from atop a rice paddy dike, village children in the removal of trash from a fetid mangrove swamp.

> *Patrick: From your point of view, what is the purpose of the coastal clean up?*
> *Informant 1: It's helping the community become aware of preserving the environment.*
> *Informant 2: Also making the people conscious about keeping their coastal area clean. So that, maybe afterwards, they can do it on their own. Because we only come here once a year, so we can't really help them throughout the year. So, at least we set an example...*

This relationship stands in contrast to another activist field-worker (who also happens to be from a relatively affluent background).

> *Jose: I got challenged by seeing these people trying to earn an honest living and it's like you can do something with them, not for them.*

Economic motives. The published literature establishes that people participate in ICM at least partly as a consequence of economic opportunities resulting from improved environmental conditions due to ICM planning and ICM-related alternative income generation schemes (Pollnac et al., 2001; Pomeroy et al., in this issue). Informants motivated to participate in ICM out of economic interests for themselves or their communities seem to fall into three categories: the dive hotel owners who have interest in maintaining a quality experience for business reasons, the fishers who want to maintain their livelihood, and

community members who may look for employment associated with ICM project activities (e.g., as mangrove guard, tree nursery keeper, or patrol boat operator).

The least complex linkage between economic benefits and motives for participating in ICM is represented by the following quote. Many community members from the Mabini area seem to be motivated to participate in ICM related activities, such as protecting a marine sanctuary, if these help maintain a livelihood such as fishing.

> *Patrick: How were you involved in the management of the sanctuary?*
> *Raul: As I said, it is a challenge for me because this is what gives my family life and this is the source of our livelihood. Because if you're going to abuse these resources, it will destroy you.*

This is particularly the case if people are economically vulnerable and highly reliant on the resource base.

Some people also get involved in ICM-related activities such as enforcement of fisheries laws due to direct economic incentives associated with employment.

> *Presco: I was a member of the CVO (Civil Volunteer Organization) formed to ... help protect the sea in 1989. I quit after 5 months since there wasn't any salary. I couldn't support myself.*

As a poor fisherman, Presco's economic status precludes considerable volunteer work in the name of ICM. Without funds for this position, Presco's commitment to ICM ended.

Certain types of business in the Philippines, such as the recreational diving industry, are dependent on a healthy marine environment.

> *Patrick: At first, it [protecting the coral reefs] was just a business issue?*
> *Jerry: Yes, it started especially in El Pinoy [resort]. It's a scuba-diving resort so [we thought we] might as well take care of the reef—*

for our guests to see something.

Members of this industry have taken a particular interest in establishing management practices that favor a positive experience for their diving clients. In a context where fish resources are widely over exploited, marine sanctuaries are one of the few places where divers are able to view relatively pristine coral reefs. Having access to these areas is important to the business as expressed by a dive resort owner.

Patrick: If it would happen that in fact diving was stopped in the sanctuary would that hurt your business?
Cristi: Of course!

Linking Environmental Condition with Sustainability

ICM efforts had distinct impacts on the coral reefs in the two case study sites. Mabini area reefs appear to have been stabilized, and even improved in some cases. Some members of local communities and resort owners are behind the ICM concept, despite differences in motives for participation. Bais Bay coral reefs are in more highly degraded state than Mabini's reefs. MPAs have not been successfully established in Bais, nor has upland deforestation been controlled. ICM-related laws are inconsistently enforced in either location (see article by Eisma in this issue).

The link between environmental condition and personal commitment, and therefore ICM sustainability, is complex and influenced by the individual's social standing, employment, and worldview. Interviews demonstrate that some informants were motivated to participate in ICM out of a desire for improved environmental conditions that sustain their livelihoods derived from tourism or fishing. Whether people are motivated to continue participating out of concern for what the future holds or out of a sense of accomplishment and inspiration is unclear. Pollnac et al. (2001) conclude that the perception of an environmental crisis is associated with MPA success.

While informants who are ICM practitioners are motivated

to support ICM due to environmentalist perspectives, none of these particular informants (or any other informants) directly identified biological conditions or environmental trends *per se* as key factors influencing the sustainability of the ICM process. Rather, they discussed institutional, financial, and personal issues as constraints to the process and their contribution. ICM is a planning process involving institutions and people intending to have particular social and biological impacts. Therefore, the breakdown of the planning process is attributable to social dynamics, and is expressed in those turns by informants. In other words, it is not possible to make a direct causative or correlative link between environmental impact and ICM sustainability.

Nonetheless, ICM environmental impact is not unrelated to a comprehensive explanation of ICM sustainability. The impact of ICM on environment condition is noted by stakeholders with each interpreting the significance of these impacts from their point of view with their personal interests in mind. Different stakeholder groups speak uniquely of environmental impacts in a manner that calls attention to their distinct interests. The melding of these interests during a multi-stakeholder process is challenging.

The interests and motives of some ICM stakeholders are potentially complementary. For example, well managed fisheries and tourism operations can exist side by side. However, exclusive perspectives that preclude other interests have resulted in conflict in the Mabini site, and throughout the Philippines. Exclusively environmentalist motives in a context where social and economic motives are widely held are likely to result in conflict. How each of these groups of people interprets and value biological measures of ICM success is indicative of these interests and may suggest the potential for conflict.

While complementary motives may sustain a process, in the cases where interests and motives clash, the potential for conflict and, therefore, ICM process derailment arises. In the case when one stakeholder group has more political

influence or economic clout, ICM may become a process generally favoring particular elite socio-economic groups (Trist 1999). None of the ICM processes in Bais or Mabini have established formal and lasting conflict resolution mechanisms.

It would be misleading to claim that all individuals fall neatly into one motivational category. Rather, most informants are motivated to participate in ICM for complex and varied reasons that change over time. For example, a veteran ICM practitioner, who may have come to the field out of environmentalist motives, is likely to come to appreciate the importance of social and economic dynamics. As demonstrated by the above quotes, social and economic considerations are important to community members who are one of many clients served by ICM practitioners. Nonetheless, the veteran ICM practitioners did express environmentalist motives as central to their commitment to ICM. These perspectives are likely to orient ICM design and implementation efforts. These perspectives are notably distinct from those expressed by local resource users who are frequently expected to maintain a community-based ICM process after a project is phased out.

This analysis warrants further development. Nonetheless, this preliminary analysis demonstrates that, even with a relatively small sample size, discernible unique motives emerge for different stakeholder groups such as ICM practitioners, resort owners, and fishers. Educational, class, and cultural background, which are distinct among these groups, likely play a role in defining these motives. This is necessarily the subject of further research.

In short, this research supports the conclusion that stakeholder motives, and how distinct motives are managed within ICM, are linked to process sustainability. ICM project design and implemented is influenced by a particular suite of perspectives that set the range for appropriate goals for ICM. A mismatch of ICM fundamental goals is likely to

influence the chance of sustainability when multiple stakeholders are involved in a collaborative process.
An analysis of the potential links between measurable biological impacts and financial support for ICM also warrants investigation. Financial supporters of ICM projects (e.g., donors, NGOs) are likely to have particular goals that are measured in biological terms. Without meeting these benchmarks, continued financial support for ICM is unlikely.

Acknowledgments

This research was supported by the David and Lucile Packard Foundation. Generous assistance has been made available from World Wildlife Fund-Philippines and the Haribon Foundation.

Thanks to Coastal Conservation and Education Foundation and particularly Evangeline White for organizing the research trips and to Earthwatch Institute volunteers for substrate data collection. Thanks are also due to Anna Meneses for creating the Mabini substrate tables. We would also like to thank our informants for volunteering their time. The community members in Mabini and Bais Bay were particularly accommodating.

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Rodolfo Avellana, Jr. is a research assistant at the Marine Laboratory, Silliman University, Dumaguete City, Philippines

Patrick Christie is an Assistant Professor in the School of Marine Affairs and Henry M. Jackson School of International Studies at the University of Washington. Dr. Christie is also the principal investigator responsible for coordinating the Integrated Coastal Management Sustainability Research Project. His research and teaching focus on the social and biological impacts of coral reef marine protected areas, participatory research, and development studies. While serving as Peace Corps Volunteer in the Philippines, Dr. Christie worked with the Haribon Foundation to establish a community-based marine protected area on San Salvador Island, Zambales.

Catherine Courtney is a marine environmental scientist with Tetra Tech EM Inc. Dr. Courtney designed and implemented marine environmental research and coastal management programs in the Philippines, Indonesia, Hawaii, and islands throughout the Pacific. From 1996 to 2002, she served as Chief of Party of the Coastal Resource Management Project, a technical assistance project of the Government of the Philippines funded by the United States Agency for International Development.

Nicel Jane Dinoy works as a research assistant at the Marine Laboratory, Silliman University, Dumaguete City, Philippines.

Roy Olsen D. de Leon is the co-principal investigator of the Integrated Coastal Management Sustainability Project funded by the David and Lucille Packard Foundation through the University of Washington-School of Marine Affairs. An Assistant Professor in the Biology Department of Silliman University, he teaches Ecology and Field Biology, Introduction to Research and Biometry, and Coastal Resource Management (CRM). His current interests include

marine ecology, CRM, and computer applications for research and CRM.

Rose-Liza Eisma is a lawyer whose interests focus on environmental law and coastal resource management. Before working full-time with the Integrated Coastal Management Sustainability Research Project, she taught environmental law, natural resources and private international law at the College of Law in Silliman University. She was also the administrator of the Legal Environmental Advocacy Programme that was established as a sub-component of Silliman University's Center of Excellence in Coastal Resources Management. She is currently the Executive Director of the Coastal Conservation and Education Foundation, Inc. based in Cebu City, Philippines.

Wednesday Gay Gaudan is a research assistant at the Marine Laboratory, Silliman University, Dumaguete City, Philippines.

Renato Claro Jadloc is a research assistant at the Silliman Marine Laboratory, Silliman University, Dumaguete City, Philippines.

Kem Lowry is Professor and Chair of the Department of Urban and Regional Planning and Director of the Program on Conflict Resolution, University of Hawaii at Manoa. Dr. Lowry has worked on coastal management programs in Hawaii, Sri Lanka, Thailand, the Philippines, and Indonesia. His research focuses on community building, coastal management, and conflict resolution. In the past year, Prof. Lowry has facilitated two international workshops, among them for UNICEF-China which examined community collaborations in UNICEF projects. In Bogor, Indonesia, he conduced an assessment workshop with colleagues at Center for Marine Studies at the Agricultural Institute. The workshop examined Indonesia's experience with community-level coastal management projects.

Marc J. Hershman is Director of the School of Marine Affairs, Professor of Marine Studies, and Adjunct Professor of Law. He is the author and editor of books on Coastal Zone Management, Urban Ports, and Maritime History. He has written over 80 papers and monographs dealing with law and policy affecting coastal and marine resources. He has been Editor-in-Chief of the *Coastal Management* journal for twenty-seven years, past president of the Coastal Society, founder of Odyssey, the Maritime Discovery Center in Seattle, and co-founder of the Marine Affairs and Policy Association. In July 2001, President George W. Bush appointed Professor Hershman as one of the 16 members of the U.S. Commission on Ocean Policy.

Richard B. Pollnac is a Professor of Anthropology and Marine Affairs & Anthropology Departments & Coastal Resources Center of the Department of Marine Affairs, University of Rhode Island. Dr. Pollnac has conducted research among coastal peoples in all major world regions, including Africa, South East Asia, the Middle East, Europe, the Pacific Islands, the Caribbean, and the Americas (North, Central, and South). Most recently his research has been focused on South East Asia, investigating sustainability of integrated coastal management projects in the Philippines and Indonesia. In 2000 he conducted an assessment of 45 community based marine protected areas in the Philippines. He has also been involved in conducting baseline appraisals and setting up a monitoring and evaluation program for a coastal zone management project in North Sulawesi, Indonesia between 1997-2001, and post-evaluations of community-based coastal zone management projects in the Philippines from 1995-1997. In addition, he has carried out projects establishing social, cultural, and economic indicators for the world-wide coral reef data base (ReefBase).
Robert S. Pomeroy is an Associate Professor in the Department of Agricultural and Resource Economics and a Fisheries Exten-

sion Specialist with the Connecticut Sea Grant College Program at the University of Connecticut-Avery Point. A fisheries economist and internationally-recognized expert on coastal resource conservation and collaborative management, Dr. Pomeroy has served as a Senior Conservation Research Associate with the the Community Conservation Network. From 1992 to 1999, he was a Senior Scientist at the International Center for Living Aquatic Resources Management (ICLARM) in Manila, Philippines. From 1999 through 2001, he was the Senior Coastal and Marine Associate in the Biological Resources Program of the World Resources Institute in Washington, DC. Dr. Pomeroy has led a number of international research projects on fisheries management and aquaculture, and has written several books and numerous scientific journal articles.

Leila Sievanen is a graduate student in the Environmental Anthropology Program of the University of Washington. As part of Dr. Patrick Christie's ICM Sustainability Research Project since June 2002, she has conducted research in both the Philippines and Indonesia. Her research in Bais Bay and Mabini-Tingloy was conducted between June and September 2002.

Brian Stockwell is with Silliman Marine Laboratory, Silliman University, Dumaguete City, Philippines.

Esperanza Tabara is a research assistant at the Marine Laboratory, Silliman University, Dumaguete City, Philippines.

Monika T. Thiele is a graduate student at the School of Marine Affairs, University of Washington. She served as Field Data Coordinator of the ICM research project.

Alan T. White is a Coastal Resource Management Specialist and the Chief of Party of the Coastal Resource Management Project of the Department of Environment and Natural Resources and

the United States Agency for International Development in the Philippines. Dr. White has previously worked as Coastal Resources Manager at the Coastal Resources Center of the University of Rhode Island as well as Consultant for Asian Development Bank. In addition he served as a specialist of the Coastal Resources Management Component, Fishery Sector Program of the Philippines, Department of Agriculture, as technical advisor of ASEAN-US Cooperative Program on Marine Sciences: Coastal Resources Management Project, ICLARM, Manila, Philippines, as well as co-director/consultant, USAID/ASIA Foundation Marine Conservation Grant, Silliman University, Dumaguete, Philippines.