

BEYOND PHYSICAL SPACE: THE HUMAN AND
CULTURAL COMPLEXITIES IN MARINE
PROTECTED AREA MANAGEMENT

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Abstract

The development and management of MPAs as protective conservation tools involve multiple stakeholders with varying agenda. Using a case study in Dauin, Negros Oriental, Philippines, this paper explores the human and cultural complexities that underlie the controversies that hound MPAs. The cultural politics enveloping the interaction of multiple stakeholders, specifically between MPA managers and resource users from the fishery and tourism sectors, influences MPA success and sustainability. Thus, as a built environment, an MPA has to be managed not only as a social space but as a physical space as well. This is where an anthropological analysis proves to be important in contributing to the environmental discourse and complementing the works of marine and fishery scientists.

Introduction

The extent of marine environmental crisis can be partly deduced from its remaining reefs (White & Cruz-Trinidad, 1998). Of the 152,716.50 hectares of coral reef in the Central Visayas region, for instance, only 12 percent at present is in good condition, 42 percent in poor condition, and 46 percent in fair condition. There are no more sites found to have coral reefs in an excellent state (Green *et al.*, 2004: 15, 21-23). The destruction of the coral reefs is primarily anthropogenic due to overfishing and illegal fishing to meet the food demands of an increasing population. This problem is compounded by domestic and industrial pollution. These factors contribute to a decline in fish catch and adversely affect the well-being of many coastal communities, particularly the subsistence fishers.

Protective conservation efforts are needed now to thwart more serious impediments brought by this crisis (Green *et al.*, 2004).

Protective conservation in coastal and marine areas refers to the initiatives and tools used in the preservation, management, and care of resources found therein through access restriction and/or regulation of human activities. The goal is to produce the "greatest sustainable benefit to present generations while maintaining its [marine protected area] potential to meet the needs and aspirations of future generations" (White & Cruz-Trinidad, 1998: 91). Like marine and fishery scientists, anthropologists acknowledge the urgency of addressing environmental crisis because this affects human adaptation and well-being. However, because of their differing disciplinary backgrounds, both specialists also tend to view the processes and results of environmental interventions differently. Natural scientists are generally more interested in improving biodiversity, while anthropologists are concerned not only with how poor fishing communities are benefited but also how they are burdened by the interventions (*e.g.*, Eder, 2005). This difference in perspective necessarily influences how they approach a common problem. More specifically, the tendency of natural scientists who adhere to ecocentrism to view the preservation of marine biodiversity as an end in itself, as opposed to the anthropocentric views advocated by anthropologists, results in a gross neglect of human and cultural dimensions in pursuing protective conservation initiatives.¹

It is encouraging to note, however, that at present more and more environmental groups adhere to an interdisciplinary or a multidisciplinary approach such as that underpins the philosophy and practice of Coastal Resource Management (CRM) or Integrated Coastal Management (ICM) programs (White *et al.*, 2002; Milne *et al.*, 2003; Christie *et al.*, 2005). One of their tools is the establishment of marine protected areas (henceforth, MPAs) (White, 1988; Russ & Alcala, 1996). Fish sanctuary and marine reserves, along with other variants where a semblance of protection is enforced,

are generally referred to as MPAs (White *et al.*, 2002). The common goals of MPA creation include rehabilitation of critical habitats like the coral reefs, replenishment of fish resources and, in some instances, promotion of coastal and dive tourism or recreation (Hermes, 2004). Alternative livelihood activities are also introduced to reduce fishing pressure and to compensate for fishing ground constriction.

In the Philippines, MPAs may be classified according to who has jurisdiction over them: (1) those under the National Integrated Protected Area System (NIPAS) pursuant to Republic Act 7586 in 1992; and (2) those under the municipal government. The first type is governed by policies and regulations promulgated by the Protected Area Management Board (PAMB) composed of multi-sectoral representatives from the host community, local government, non-government organizations, and other stakeholders. The Department of Environment and Natural Resources (DENR) Regional Executive Director is the designated chairperson of the PAMB (Custodio & Molinyawe, 2001). Meanwhile, the second type is declared by virtue of a municipal ordinance and co-managed by the local government and fishers' associations in barangays where this is located. Under the Local Government Code of 1991 and the Fisheries Code of 1998, local government units are given powers to manage and control fishing and other human activities within their municipal waters (DENR, 2001). In Central Visayas, there are about 206 legally declared municipal MPAs (*i.e.*, with local ordinance), while seven are under the National Integrated Protected Areas System (NIPAS). Of this number of MPAs, 116 are in Bohol, 59 in Cebu, 23 in Negros Oriental, and 8 in Siquijor (Green *et al.*, 2004: 87).²

Using a case study in Dauin, Negros Oriental, this paper illustrates how protective conservation efforts with MPA as a tool are being undertaken by a municipal government despite the tension created by multiple stakeholders and differing agenda over the use of space. Moreover, this paper aims to explore the notion that MPA success and sustainability are not only

technologically determined but are also influenced by how human and cultural complexities are addressed. The unique nature of Dauin in terms of how the current mayoral leadership pursues its vision of a sustainable coastal and marine environment, perhaps not typical of other local government units, may provide some lessons for other mayors who are planning to set up their own CRM programs or are currently engaged in carrying out their goals and objectives.

Theoretical Considerations

Although the development of MPA technology grew out of the field of the marine sciences, its fundamental rootedness in the human and cultural context has also spawned anthropological interests. The myriad implications of the spatial regulation of human behavior in the use of marine and fishery resources have attracted the attention of anthropologists. The anthropological interest on MPA as a built environment is inspired by the argument of Milton (1996) that environmentalism, as a cultural phenomenon, is a product of social construction (Berger & Luckmann, 1967). Moreover, the tools and methods of anthropology lend themselves very well to a critical exploration of the way different peoples adapt to any curtailment of free access to a commons.

Anthropologist Leslie White (1949: 390) wrote earlier that "(t)he means of environmental adjustment and control, of security and survival are of course technological. Culture thus becomes primarily a mechanism for harnessing energy and of putting it to work in the service of man." More importantly, Pfaffenberger (1992: 497) said that, "it is not mere technology, but technology in concert with the social coordination of labor, that constitutes a human population's adaptation to its environment." Therefore, with regard to the development and introduction of MPA technology, anthropocentrists proposed that human and cultural dimensions have to be considered so that they will effectively work not only for biodiversity's sake, as argued by ecocentrists, but also to enhance the quality of life of a particular community.

Protective conservation effort cannot realistically proceed without articulating or accounting for the prevailing perceptions, cultural rationalities, and values behind the use of space by multiple stakeholders. Current studies on MPAs (Christie *et al.*, 2005) argue that the inclusion of people's perceptions toward the impact of MPA on their interaction with environmental resources and on other stakeholders would complement the biological science aspect of MPA which relies heavily upon objective biophysical data. It is also important to note that a multiplicity of stakeholders makes MPA development and management a culturally complex engagement. It is widely accepted that the success of MPA depends just as much on its excellent technical design as on its popular social acceptability because it is adaptive to certain contexts (Christie *et al.*, 2003). This view necessarily complements the issue that Alejo (2000: 19) calls the "internal complexity of contextual actors." Addressing this issue, Eder (2005: 167) avers that "social differences and divisions" result in varying perceptions and competing claims over a public space.

From a social science perspective, a MPA embodies a set of rules that collectively governs human interactions within a specified portion of the marine environment. It is an articulation of human attempts to restore nature that has been ecologically disrupted by human activities. It defines *who* may do *what* activities as well as *how*, *when*, and *where* these may take place within its boundaries (Mascia, 2004). But because restrictions and regulations connote power and control, a MPA inevitably causes tension and conflict among the political, environmental, and economic sectors that are driven not only by differing motives but often by conflicting goals as well. Failure to arrive at a negotiated agenda may explain why MPA effectiveness remains a problem. Experts noted that a majority of MPAs in the country probably exist on paper (Llermes, 1998; White *et al.*, 2002) and only a small percent of all the MPAs are working as MPAs

in a real sense (Alcala, 2001). There are also MPAs that are biological successes and at the same time social failures (Christie, 2004).³

A MPA transforms a physical space and alters the tradition of open- and free-access to a commons, it becomes a social space—a site of political struggle, of class identity and of survival. This inevitably results in resistance from those in pursuit of respective agenda that affect social and interpersonal relationships among and within multiple stakeholders. Given these circumstances, a MPA is more than a protective conservation tool to achieve marine biodiversity. It is a site of cultural politics in which various groups representing diverse political, social and economic agenda struggle for control, management, and enforcement of the designated space. Hajer and Fisher (1999: 8) explain that cultural politics operates in instances when “different systems of ordering are either maintained or imposed on others, how questions of identity feature within environmental discourse, how social relationships get redefined, or how particular ways of doing things either get reproduced or are changed.” According to Escobar, it is inevitable “[that] sets of social actors shaped by, and embodying different cultural meanings and practices *over physical space* come into conflict with each other” (1998, *emphasis mine*).

Methods

Dauin is 15.5 kilometers southwest of Dumaguete City, the capital of Negros Oriental. It has a population of 22,698 (as of 2004) and measures approximately 14,432 hectares comprising 23 barangays (RHU, 2004). Eight of these are coastal barangays and one is an island barangay (*i.e.*, Apo Island). It has nine MPAs located off seven of the mainland coastal barangays (*see* Appendix A). Two of them have two MPAs each. The sizes of the MPAs range from two to nine hectares and cover a total of about 52 hectares. Another MPA, the first in Dauin, is located off Apo Island and that measures about 11 hectares. Because Apo Island MPA is already included

in the NIPAs and directly under PAMB, only the MPAs off the mainland are included in this study.

Majority of the coastal residents of Dauin engage in farming with corn and coconut as major products; the rest of the population engage in fishing. The number of fishers in 2003 was 1,076 (Gotera, 2003) constituting 9 percent of the total coastal population. Based on the fishing gear they use, they are all considered non-commercial fishers. About 86 percent owned non-motorized boats and only 14 percent had motorized boats (Gotera, 2003). They used a variety of hook-and-lines and fish nets that are designed only for nearshore fishing, particularly over coral reefs and seagrass beds; hence, they are most affected by the establishment of MPAs. The estimated fish production in 2003 was about 1,683 kg. About 25 percent of the total catch came from the simple hook and line method. In sum, the computed weighted average catch per unit effort of *all* the fishing gear was 5.40 kg. per fishing gear per day (Gotera, 2003), and this is likely to be close to the present-day figures.

There are currently six beach resorts and eight dive resorts located on the mainland while two dive resorts are found in Apo Island. Beach resorts are primarily for picnickers or vacationers while dive resorts provide services and amenities for diving courses and pleasure diving. The first resort on the mainland was built in 1995. Mostly foreigners (particularly Europeans) own the upscale beach and dive resorts. Dive shops and resorts in Dumaguete, Bacolod, and Cebu also bring their guests to Dauin. Coastal and dive tourism growth in the municipality is primarily due to the popularity of Apo Island as a dive destination. The MPAs off the mainland are also highly accessible and equally fascinating to tourist divers. Between 2003 and 2004 alone, six resorts were opened as Dauin became popular among coastal and dive tourists as compared to nearby towns in southern Negros Oriental.

The sources of information of this study were categorized into groups of MPA managers and resource users for analytical purposes, and to give voice to all

involved and affected by MPA development and regulations. The first group included the mayor, vice mayor, municipal planning and development officer, municipal council member on environment, environmental workers from the provincial government and non-government organizations, barangay captains, fishers' association presidents, and sea wardens (*bantay dagat*).

The second group was comprised of fishers who are members and non-members of fishers' associations and tourism brokers who are represented by operators of resorts and dive guides. The sea wardens, fishers, and tourism brokers were randomly selected because there was a number of them while the rest of the MPA managers were purposively identified. A total of 84 respondents interviewed were equally distributed as MPA managers, member fishers, non-member fishers, and tourism brokers. They served either as consultants in the sample survey component of the study or as experts and key informants. The questions asked relative to the MPAs revolved around the following issues: development history, management policies and regulations, perceived effects on fish and coral conditions, impact on fishing behavior and gear, distribution of fishing and tourism benefits, tension and conflict among stakeholders, cultural articulations of enforcement and resistance, perceptions of sustainability and related others.

The fieldwork, which covered 14 months from May 2004 to June 2005, employed a combination of ethnographic and social survey techniques such as key informant interview, participant observation, archival research, and sample survey. In the absence of objective data over time, the survey component measured the perceptions of various stakeholders about MPA improvements and benefits during different periods relative to the political dynamics of the town. As used for comparative analysis in this study, the past refers to that period when the incumbent mayor was not yet in office (before 2001), the present corresponds to the

period in which he is the incumbent mayor, and the future refers to that period when he will no longer be the mayor. This could mean after 2007 because he may not be re-elected, or after 2010 because he will have completed his allowed length of time in office (*i.e.*, nine years).

Perceptions were quantified so they could be statistically analyzed and compared across categories of stakeholders. For example, based on their perception over time, the MPA managers and every resource user were asked to rate from 0 (lowest) to 5 (highest) the improvement in coral condition and fish density, fishing and tourism benefits, and related parameters brought about by the MPAs. This technique takes advantage of the human ability to make graduated judgments about subjective and objective phenomena and not simply according to a dichotomous judgment of being absent or present (*e.g.*, Pomeroy *et al.*, 1997; 2005). More refined judgments are provided that are statistically treatable to measure commonalities and differences in human perceptions. Nevertheless, objective data (*e.g.*, underwater biophysical assessment, tourism revenues, scuba diving incidences) were also used to validate the perception data.

Thematic analysis was done with qualitative data while quantitative data were analyzed using statistical tools such as percentage distribution, mean, test of difference for comparing paired and independent samples (*t*-test), one way analysis of variance (ANOVA) for comparing various samples, and Pearson Product-Moment Correlation Coefficient (*r*) for determining the relationships between interval variables. The use of a mixture of qualitative and quantitative data and analyses was deemed necessary to provide both the depth and spread of the issues being investigated. Moreover, quantification improves or minimizes the sometimes vague wording of ethnographic texts provided that statements made are based on randomized samples according to anthropologists Johnson and Johnson (1990).

Results and Discussion

Local government as a dominant agency

From an environmentalist perspective, Dauin's achievement in pursuing a protective conservation program aimed at *food security* for its constituency is a success story. Known as Coastal Resource Management (CRM) Plan, this conservation program has been introduced by external agencies and non-government organizations. After adopting this Coastal Resource Management (CRM) Plan and ordinance, Dauin has allocated an annual budget for the CRM program, formed a municipal fishery council and fishers' associations, zoned the coastal areas according to allowable uses, established a remarkable number of MPAs (*i.e.*, being the only town in the province to have established 10 functional MPAs off its nine coastal barangays), deputized sea wardens to enforce CRM regulations, and imposed a user fee system to finance CRM activities and related projects. For this accomplishment, the director of DENR Region 7 has cited Dauin as the first and the only municipality in Negros Oriental to reach Level 1 in CRM certification (Green *et al.*, 2004). Because of its outstanding CRM program, it also received a national recognition in December 2005 as a *Gawad Galing Pook* awardee along with 9 other outstanding local government units in the Philippines.⁴

The incumbent mayor, Rodrigo A. Alanano, who is acknowledged by many to be a staunch environmentalist, has demonstrated personal commitment, strong political will, and authority. Pursuant to his mandate under the Local Government Code, he has been actively promoting a protective conservation agenda aimed at ensuring food security from the sea. A mining engineer by profession, Mayor Alanano admitted that it was his exposure to indiscriminate and extractive human activities in mining that awakened in him a deep concern for the environment. Under his mayoral leadership, six MPAs were established in a shorter span of time (2002 to 2004)

in contrast to the dismal environmental records of the past three administrations, which took so much time to pass the required ordinances (1995 to 2001).⁵

Predictably, the incumbent mayor's stiff management actions and decisions have stirred negative reactions from those whose personal and economic interests are not being served in the process. This sector includes disgruntled fishers and tourism brokers who perceive or misconstrue his conservation policy as anti-poor and anti-tourism. His ethical views and judgment about how the coastal and marine areas should be managed are believed by some to have burdened the resource users. Even his stance against beach seining, a national law that he is simply trying to enforce, became a political issue against him during the 2004 election.⁶ Convinced of the rightness of his cause, however, Mayor Alanano was unalarmed by the prospect of losing political support. His re-election has encouraged him even more to pursue Dauin's CRM programs.

Although it is true that consultative mechanisms exist in Dauin, it is the local government that makes the final decisions about CRM issues according to its own interpretation of resource distributive justice and sustainable development. The local government determines *who* may enter an MPA (literally fenced with buoys made of styrofoam balls),⁷ *what* activities are allowed, *how* these are to be done, *where* these are allowed, and *when* these are possible. The appropriation of the coastal zone is guided by its CRM Plan (Chapter 6 of Ordinance No. 05-01), supposedly a product of multi-sectoral consultation. But unlike the fishery sector that is represented in the municipal fishery council and MPA management regime through the fishers' associations, the tourism sector, specifically referring to the dive tourism business, is not (as of my fieldwork) actively and directly involved. Still viewed simply as MPA user, it is expected to abide by existing regulations that are imposed to protect local interest. It is widely perceived that private tourism brokers are merely

serving their business interest, and many believe that their activities may jeopardize the CRM program of the town if given more privileges and left unregulated.

Although the local government dominates in decision-making process, this does not mean that the resource users have no chance to benefit from the positive results of a MPA. The fishery sector is the intended primary beneficiary of MPA creation from improved fish yields after several years of reef protection. But because fishing is extractive, it is only allowed outside the core and buffer zones. The potential damage of drifting gear to the corals is the reason why fishing within the buffer zone (*i.e.*, 30 meters from the MPA core zone which was originally 10 meters only) is being restricted. Fishers are expected to benefit only from MPA spillover effects beyond the buffer zone, which incidentally will still take several years before these are significantly achieved.

Scuba diving and snorkeling are allowed inside the MPA core zone (swimming is also permitted within a designated area outside of this zone) because these are considered not destructive if strictly regulated and properly done. In this respect, the tourism sector becomes the MPA's direct user and because of this it is perceived by local fishers to have more access privilege (see also Oracion *et al.*, 2005b). However, to sustain the financing of MPA maintenance and enforcement, the government has legislated corresponding user fees. But night diving, which is sought more by tourists, is not permitted within the MPA core zone because of the greater potential damage it will cause to the corals by scuba divers.

No matter how rigid they may seem, MPA management policies and regulations are aimed toward sustainable fisheries and tourism. From the perspective of the local government, this is their way of balancing *aesthetic* and *extractive* conservations with *biotelic* (leaving nature alone for its own sake) conservation (see Oracion *et al.*, 2005b: 395). In contrast, resource users are viewed by the local government of Dauin, whose main concern

is realizing the long-term impact of protective conservation, as mainly after immediate economic benefits. Environmental NGOs working in Dauin (particularly CCEFI) is trying to reconcile these differences by promoting a more participatory engagement in MPA management and monitoring among all stakeholders.

Adaptation to protective conservation and its economic impact

For purposes of investigating MPA success and sustainability, only the MPAs of Masaplod Norte and Poblacion 1 (adjacent barangays) were included in the study because they satisfy the time requirement for doing such analysis. They were created in 1995 and 1996 respectively and have therefore experienced the town's political turnovers that are believed to have influenced MPA management agenda and propensity. Table 1 shows that MPA managers and local fishers share a common perception that fish supply and coral reef quality (2.48) inside these MPAs were poor before protective conservation was introduced. Despite their initial skepticism about MPA's conservation impact, MPA managers and all resource users agree, as reflected in their individual ratings (ANOVA, $p > 0.05$), that the reefs within the said protected areas had *moderately improved* (3.12) after a few years.

Interestingly, the MPA of Poblacion 1 was composed originally of two adjacent MPAs. One of these, however (similar to the MPA of Masaplod Norte), was managed at that time by the rival political party of the incumbent mayor. The mayor spearheaded the establishment of one of these MPAs of Poblacion 1 when he was yet a member of the municipal council (1986 to 1998). Because he was unable to get party support in 2001, he joined the rival political party, which invited him as its mayoral candidate, and won over his former party mates. Merging the two MPAs immediately after his election as mayor, he made the CRM program a priority agenda of his administration, a move that has made a strong impact on the current number and status of the MPAs.

Table 1. Perceptions of Local Stakeholders on Fish and Coral Conditions Within the MPA Reefs Before and After MPA Creation

Local Stakeholders	Ratings during different periods		
	Before MPA	After MPA	t-test
MPA managers	2.53 (0.51)	3.26 (0.71)	4.77**
Member fishers	2.24 (0.39)	2.86 (1.23)	3.29**
Non-member fishers	2.67 (0.94)	3.24 (1.19)	3.51**
ANOVA	1.63*	1.03*	
Mean	2.48	3.12	

Figures in parentheses refer to variances.

*Not significant

**Significant at 0.05 (t-test critical value= 2.09, ANOVA critical value= 3.15)

In Table 2, the respective perception ratings of all stakeholders between the past and present MPA conditions also show significant improvement. However, if compared across categories of stakeholders, the data show that the respondents do not share a similar appreciation of the extent of present improvement. This is evident in the data which show that member fishers are more appreciative of MPA biophysical improvement (4.81) as compared particularly to tourism brokers (4.24). Nevertheless, despite minute differences in their perception ratings, respondents generally see now some positive biophysical results due to protective conservation. The perceptions of stakeholders about biophysical improvement due to the MPAs are supported by the objective data of environmental NGOs (White *et al.*, 2002; SUAKCREM unpub. data, 2004).

Table 2. Ratings on Fish and Coral Conditions Within the MPAs

Stakeholders	Past [a]	Present [b]	t-test [a and b]	Future [c]	t-test [b and c]
MPA managers	3.26 (0.72)	4.52 (0.24)	5.81**	4.45 (2.25)	0.19*
Member fishers	2.86 (1.23)	4.81 (0.36)	7.43**	4.43 (2.36)	1.09*
Non-member fishers	3.24 (1.19)	4.67 (0.43)	4.80**	4.76 (0.43)	1.45*
Tourism brokers	3.33 (0.85)	4.24 (0.17)	5.11**	4.40 (0.24)	2.09**
ANOVA	0.94*	4.17**		0.45*	

Figures in parentheses refer to variances.

*Not significant

**Significant at 0.05 level (t-test critical value=2.09, ANOVA critical value=2.72)

Table 3 shows that MPAs had varying economic impacts on different resource users. Among fishers the establishment of an MPA expectedly resulted in constriction (-14.84%) in their traditional fishing grounds—the coral reefs that are now declared as MPAs. Thus, for this sector the MPAs have not only brought changes in their fishing practices but have forced them to intensify farming and off-farm employment to augment fishing income. Interestingly, even member fishers, who perceived higher fishing benefits, also experienced more fishing constriction (-24.12%) and gear (-38.78%) reduction. This suggests that improved fish catch due to the MPA, whether fishing is done closer or outside the buffer zone, also accounts for reduced fishing efforts in contrast to the claim of unsatisfied fishers.

A closer examination of the data reveals that among those disallowed to fish within the buffer zone, it is the older fishers who are particularly more critical about MPA spillover benefits. These fishers tend to overstate the value of the MPA with freedom to fish within the buffer zone. This attitude goes back to their long experience in fishing and to their knowledge that more fish thrive closer to the reefs, which have now become protected areas. Unconvinced by the notion of the spillover effect, they cling to the belief that most of the species are reef-residents and do not swim out of the reefs. Therefore, a spillover can hardly be expected. Meanwhile, those who pursue more fishing at present, particularly the non-member fishers, have to cover more fishing grounds and farther from the protected areas as a mode of adaptation. They experience a lower percentage of fishing ground constriction (-5.56%) and gear reduction (-2.44%), which suggest a growing fishing effort in non-protected areas, such as in other waters within and outside of the barangay or in nearby municipalities.⁸

Table 3. Changes in Fishing Grounds and Gear Before and After MPA Establishment

Information	Member fishers			Nonmember fishers			Total
	Before MPA	After MPA	% Change	Before MPA	After MPA	% Change	% Change
Average number of fishing grounds	2.57	1.95	-24.12	2.52	2.38	-5.56	-14.84
Total number of fishing gear used	147	90	-38.78	123	120	-2.44	-20.61

Because tourism is not the primary reason for the establishment of the MPA, it is considered only as MPA-added value in Dauin. Yet, of all the stakeholders affected by the MPA, it is actually the tourism sector that has mainly and directly reaped the economic benefits of protected coral reefs. The rapid growth of coastal and dive tourism in the town is evident in the number of resorts that have been established more recently. Needless to point out, tourism benefits the town by generating taxes and producing employment opportunities. During the period of my fieldwork, the tourism tax earned by the municipality totaled Php248,450.00. Moreover, tourism provided employment to 64 percent (n= 179) of the local residents. The MPA user fees earned totaled Php706,208.00. Eighty-five percent of these came from scuba diving fees. A total of 6,241 scuba dives were recorded during a twelve-month observation in three MPAs off the mainland, but this was very seasonal due to climatic variations. The collected user fees were shared among the fishers' associations managing the MPAs, the municipal government, and the barangay government. The share of the municipality went to its CRM fund.

As has been noted, there is a prevailing perception that those in the tourism sector, particularly tourism brokers, benefit most from the MPAs because these are directly used as touristic sites. On the mainland, those who work in the tourism sector earn two to three times more and contribute higher to total household income compared to those in the fishery sector. In comparison, those in the fishery sector of Apo Island earn almost

twice as much as those engaged in the tourism sector (Oracion, 2005). It appears that on the island fishing is a prime contributor to total household income unlike on the mainland. This suggests that the impact of protective conservation on fishing is not yet significantly felt on the mainland as compared to Apo Island, which has a MPA since 1985 (Russ *et al.*, 2004; Oracion *et al.*, 2005a). Tourism can cushion the immediate negative impact of fishing ground constriction due to MPA creation. Unfortunately, not all of the affected fishing households found employment in the resorts.

The collected MPA user fees are expected to be a source of capital to develop livelihood and community projects that will benefit a good number of displaced fishers. At the time of this study, on the contrary, a major portion of the income of fishers' associations from user fees was being allocated for MPA maintenance and enforcement of regulations. Between 30 to 32 percent of their income is used to pay the honoraria of the sea wardens and some association officials; the rest is used for the repair and replacement of damaged MPA boundary, mooring buoys, and guardhouses. Nonetheless, it was noted that the association was able to lend money to members during emergency.

But since 48 percent of the members of fishers' associations surveyed were not engaged in fishing, neither in processing nor trading, not all those who are actually benefited by the associations are directly affected by the MPAs. Similarly, alleged anomalies in the collection of user fees, poor accounting, and mismanagement of the income of fishers' associations have dampened the enthusiasm of some members. During the latter part of my fieldwork, I was able to note that problems involving money were already being addressed by the associations concerned and the mayor. Whether the mitigations being introduced were implemented and practiced by the associations—and had effectively worked to curb further anomalies involving monies—is something to pursue in future research.

Conflicting spatial representations and claims

Although both MPA managers and resource users have acknowledged some positive biophysical results of protective conservation, they were not in unanimous agreement over specific management policies and regulations that govern MPA appropriation at present. Their varying cultural orientations and economic activities may explain these differing perceptions of coral reefs and MPAs. While local fishers perceive the coral reefs as abundant fishing grounds, tourism brokers on the other hand perceive them as beautiful sites for pleasure or recreational diving. All the tourism brokers interviewed found the MPA favorable to the dive tourism business under certain conditions. In contrast, 15 percent of surveyed local fishers expressed initial opposition to it. About 90 percent of members of fishers' associations and 81 percent of non-member fishers were originally convinced of the importance of MPAs for the protection of the coral reefs.

However, fishing within the buffer zone persisted during my fieldwork due to the fishers' insistence that this area is already outside of the MPA and that fewer fish thrive farther from it. Fifty-two percent of non-member fishers and 43 percent of member fishers strongly objected to the buffer zone and the reasons for its establishment. They argued that they are doubly deprived of access rights to their favored fishing grounds especially because their techniques are primarily designed for nearshore fisheries.⁹ In their view, allowing them within the buffer zone, which would enable them to gain immediate benefits from spillover effects, is a decent compensation in return for giving up their traditional access rights over a protected reef. Meanwhile, only about one-third of tourism brokers surveyed are amenable to the MPA user-free proposal at a particular reef near the resorts that they have been freely using as a dive site. Although they appreciate the importance of a MPA for tourism, they are hesitant to surrender free access privilege to this

reef because its conversion obligates them to pay user fees and prohibits them to dive there at night.

Eighty-six percent of tourism brokers are also against the imposition of user fees for diving inside an artificial reef in one barangay and its conversion to a MPA because, as they argued, there are no corals to protect there. Unfortunately, this is a misconception of the nature and purpose of an MPA. They also argued that since it was installed by a private resort for divers, the local government cannot impose fees. Nonetheless, agreeing to pay for diving inside the other MPAs off the mainland in exchange for the protection by the local government, they are lobbying for a single fee to cover entrance to all MPAs for one whole day. Their other proposals include regulating night diving rather than banning it, reserving coral reefs that are not biologically feasible to become MPAs for pleasure diving and training of scuba divers, and lowering the user fee rates for Filipino divers. Locals are also asking for exemptions from paying user fees.

Despite the opposition from the various stakeholders, all the contested reefs were successfully declared as MPAs while the management issues being questioned were included in the final version of the amended CRM Plan. Among disgruntled resource users, however, the perception that the establishment of MPAs has been driven by money rather than by protective conservation in a real sense prevails. In response, the local government reiterates that the MPA revenues are necessary to finance its CRM program toward sustainable fisheries and tourism. The MPA fees imposed are payments in return for the benefits currently enjoyed by resource users particularly from the tourism sector.

Cultural articulations of protective conservation

The buffer zone, various user fees and rate hike, and ban on night diving inside a MPA are controversial provisions of the amended CRM Plan. The failure of resource users to openly negotiate on

these concerns has resulted in resistance that continues to be expressed in various cultural forms. For instance, when members of the same group get together, they are most likely to express their frustrations by denigration (Cebuano: *libak*) and complaining (*bagolbol*). To illustrate, fishers who allege that the mayor is unconcerned about the burden of MPA regulations on them tend to brand him as “uplander” (*taga-ibabaw*),¹⁰ who is clueless about the challenge of living dependent on the sea and the demands of fishing as an occupation especially for subsistence fishers. In the tourism sector, and among divers in particular, the prevailing view is that the mayor is ignorant of dive ethics that scuba divers abide by to protect and preserve the coral reefs. Both groups share the view that these character flaws undermine the mayor’s ability to make sound decisions. Meanwhile, some sectors wish him failure in the next election. Among tourism brokers whose main interest is protecting their business operations, the common lament is that they have no choice but to acquiesce (*sunod na lang*) to the existing regulations or risk certain consequences, such as the cancellation of mayor’s permit.

Another form of resistance by disgruntled resource users is deliberate non-compliance of regulations or petty violations. When violators are apprehended, they often feign ignorance (*wala kahibalo o pagka-inosente*) in order to seek reprieve from penalty

You asked for a supply of potable water, an electrical connection, medicine, burial assistance, and many others and I never refused to give these to you. Now, I am asking your help for the barangay project but you have failed to reciprocate. I don’t care if we sever our ties. I will no longer respond to your requests for assistance and you can do the same to me. I will only help those who will help me. Do you still want to help? If so, do it.

(*pasayloon ra*). The refusal of resort operators to instruct their guests in responsible behavior and inform them

transformed into a cultural tool that encourages reciprocity in order to generate support for an environmental program. Latently, it simultaneously reinforces a highly delicate political career. Remaining unfazed by criticisms and unworried about his political career, the mayor persists in pursuing the goals of environmental conservation. He believes that this is a legacy he can bequeath to his constituency when he leaves politics. Thus, despite continuing defiance, even by his own political supporters (*kapartido*), he exercises his prerogative as the town's chief executive to demand compliance from those opposed to or unsupportive of his community projects, many of whom he considers to be only after personal gains. He told one of them:

Try to fish inside again and I will send you to jail. I'm not kidding even if you're a Dauinanon. You're too hard-headed. This is for the good of the community. You just want to secure yourself. You want to solely harvest our marine resources. But I will not allow it. I will not stop pounding on you until you are straightened. work on this for my personal interest. This is for Dauin. This is for you.

To reinforce the legal mechanisms of the protective conservation program of the town, the mayor has also invented cultural symbols and initiated festivals that address environmental issues to instill the values of biological conservation to his constituency. Together with a prominent educator who is also a Dauinanon,¹¹ he composed *Dauin Kong Pinangga* (My Beloved Dauin, see Appendix B), and institutionalized it as the official hymn of the municipality. The text of the song describes the interconnectedness of the upland and coastal areas, conveys the natural beauty and richness of Dauin, and inspires and teaches environmental protection.

He also conceptualized the *Kinaiyahan* (nature) Festival, held during the annual town fiesta (September 10) and participated in by school children, to reinforce the municipal hymn. As cultural events, the town fiesta and the festival provide the mayor both the occasion

Table 4. Ratings of the Present and Future MPA Support of Different Officials and Personal Support of Local Stakeholders

Individuals Rated and Raters	Present [a]	Future [b]	t-test [a and b]
Municipal officials (Mean)	4.53	3.50	-1.03
MPA managers	4.33 (0.63)	3.67 (3.03)	2.04*
Member fishers	4.76 (0.19)	3.67 (3.73)	2.77**
Non-member fishers	4.50 (0.47)	3.15 (4.03)	3.13**
Barangay officials (Mean)	4.36	3.54	-0.82
MPA managers	4.38 (0.55)	3.76 (3.09)	1.94*
Member fishers	4.52 (0.46)	3.57 (2.96)	2.59**
Non-member fishers	4.19 (0.86)	3.29 (3.41)	2.36**
Fishers' association officials (Mean)	4.08	3.66	-0.42
MPA managers	4.00 (0.50)	3.71 (2.81)	0.74*
Member fishers	4.43 (0.66)	3.76 (2.99)	2.00*
Non-member fishers	3.81 (1.26)	3.52 (2.16)	1.45*
Personal or self (Mean)	3.89	3.67	-0.22
MPA managers	4.29 (0.51)	4.05 (1.35)	1.00*
Member fishers	3.86 (0.93)	3.43 (2.16)	1.74*
Non-member fishers	3.52 (1.16)	3.52 (1.16)	0.00*

Figures in parentheses refer to variances.

*Not significant

**Significant at 0.05 level (t-test critical value= 2.09)

member fishers (0.43) and tourism brokers (0.24). It is possible that the continuing apprehension about sustainability within these groups who are directly behind the MPAs stems from past experiences with previous political events.

Table 4 further shows that it is the local fishers, particularly the member fishers who registered a negative net rating between Table 4 further shows that it is the local fishers, particularly the member fishers who registered a negative net rating between future and present MPA conditions, who are more apprehensive about the support of future administration. Interestingly, only the tourism brokers predict that the biophysical conditions of these MPAs will significantly improve or be sustained even with a change in local administration. Perhaps they envision better terms and more incentives in the future as compared to the present. Being mostly non-indigenous residents of Dauin and having already invested much on tourism infrastructure in the town, tourism brokers are less mindful of the town's political dynamics, which locals consider a crucial factor likely to impair MPA sustainability. Also, being entrepreneurs, they are risk takers and more inclined to believe in a positive future for an area in which they have invested so much.

Meanwhile, local fishers who have internalized a local political culture of partisanship and patronage rely heavily on mayoral leadership in supporting an environmental program. Moreover, member fishers who perceive lesser benefits also express lesser future MPA support ($r = 0.48, p < 0.05$), which will impede the continuous management and functioning of the MPAs. For his part, the mayor believes that an informed, legally and economically empowered fishers' association will pre-empt any political threat to MPA sustainability. As a voting constituency, supportive locals who are already strongly convinced of the economic potentials of MPAs can stand as a pressure group. They have two options: first, by not voting for those who will undermine the current efforts of the administration to strictly enforce the MPAs; and second, by resisting any adverse actions of future political

leaders who will open some MPAs to fishers to fulfill a political promise.¹²

Conclusions

This paper concludes that the controversies behind the development and sustainability of MPAs are more often due to human and cultural rather than technological complexities. Because it is a social construction in the sense of Berger and Luckmann (1967), an MPA has an objective reality that is at once subjectively meaningful. This only means that the unique nature of MPA has to be understood as a sociotechnical system (Pfaffenberger, 1992) because it cannot successfully function and be sustained without consideration of its human components: the representations of space and spatial behavior, political and economic agenda and aspirations, social positions and access to power of its multiple stakeholders, among other factors.

The social acceptability of a MPA as protective conservation tool against environmental crisis that threatens the community's food security from the sea is not a major issue at this point in time in Dauin. Of great concern are the non-cooperation and resistance by disgruntled resource users who find that unacceptable MPA management policies and regulations have reduced the economic benefits they expected (see also Christie *et. al.*, 2005). As a number of studies have shown (Escobar, 1998; Hajer & Fisher, 1999), only a full understanding of the cultural politics involved in managing a MPA will ensure its success and sustainability. To understand this dynamics, MPA has to be treated not merely as a physical space but more importantly as a social space.

It is to be expected that the various experiences of local stakeholders with MPA benefits, local politics, and MPA management will influence their perceptions of its impact and prospect of sustainability. Tourism-generated benefits have to be equitably distributed among those directly involved in MPA development and management and those actually burdened by fishing ground constriction. Local political agenda

should be intertwined with environmental agenda so that a MPA institution will survive any political turnover and ensure intergenerational equity. Moreover, MPA management policies and regulations to be pursued should be hinged on a balanced perspective of both social and biological considerations (Christie *et al.*, 2003).

With the current state of coastal and dive tourism in Dauin, it behooves the local government to recognize the role of the tourism sector in MPA management. In contributing to the town's economy, the tourism sector can complement the mayor's food security agenda from enhanced fisheries. Providing a space for the tourism sector to actively participate in MPA management will foster dialogue and build trust toward mutual benefits. But the local government must exercise all the rights and powers to set limits for possible excesses of tourism (e.g., too many tourists, too much night-time diving, littering, coral reef damage), as well as fishing activities (e.g., intrusion, poaching). Finally, with strong fishers' associations, including now the local tourism sector, involved in environmental co-management, threats of political turnovers to MPA sustainability may be effectively mitigated.

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Notes

¹ *Ecocentrism* views “humans as subjects to ecological and system laws” and promotes “respect for nature in its own right”, while *anthropocentrism* places “humans at the center of all creation” who bestow value upon nature for their benefit (Pepper, 1996: 328-329). These perspectives correspond respectively to the distinction made between *preservationists* and *conservationists*. Preservationists “recognized a moral obligation towards nature itself and wished to protect it *from* human use”, while conservationists “wished to protect nature as a resource for human use” (Milton, 1996: 74, *emphasis original*).

² See www.coast.ph for the updated statuses of the MPAs in Central Visayas as well as in other parts of the country being done by the Coastal Conservation and Education Foundation, Inc. (CCEFI). A good discussion about the MPA rating system developed and used by CCEFI in order to improve MPA management is found in White *et al.* (2004: 226-232).

³ Working or functional MPAs in a real sense are strictly managed and enforced by concerned authorities and organizations equipped with necessary enactments and have evidently shown physical evidence of improvement in fish abundance, biodiversity, and habitat (coral substrate) within a given area. MPAs considered as social failures suffer a lack of broader support and participation from all affected stakeholders resulting in conflict and tension among them particularly in areas of decision-making, management, and distribution of benefits (*see* Christie, 2004: 158).

⁴ The award, a tribute to innovation and excellence in local governance, is a joint initiative of the Department of Interior and Local Government (DILG) through the Local Government Academy, the Ford Foundation, and other government agencies and non-government organizations.

⁵ This is except for Apo Island MPA, which was a joint initiative of the community and Silliman University in 1985.

⁶ *See* Eder (2005: 160-161) about how beach seining has become a political issue and what the various discourses are for and against it relative to the national ban.

⁷ This is actually a product trademark commonly used by fishers to describe a lightweight thermoplastic material formed into a ball that serves as a floater or a buoy in fishing.

⁸ This will be an interesting fact to pursue in future studies by a collaboration of biological and social science experts combining their respective research techniques in fish catch monitoring, resource valuation, and spatial behavior of fishers.

⁹ For example, the MPAs of two adjacent barangays in the Poblacion (town center) are separated only by the buffer zone. One of these MPAs was formerly a very accessible and rich area for beach seining because it is sandy and protected from strong sea currents. Beach seiners have to move now to the next barangay—the only one in Dauin that has no MPA.

¹⁰ Although it is true that he comes from one of the upland barangays of Dauin, the Mayor claims to have fished during his adolescent years, an experience that allowed him to observe and to experience how the coral reefs had been damaged by abusive and intensive fishing techniques.

¹¹ Dr. Henry A. Sojor, a cousin of the mayor and president of the Negros Oriental State University (NORSU) in Dumaguete City.

¹² This possibility is not remote. For example, Russ and Alcala (1999: 310) reported how unsupportive mayors of the MPA off Sumilon Island in southern Cebu opened it to fishing as part of their election campaigns. They promised to “give Sumilon Island back to the fishermen.” Another report also reiterates how political turnovers pose threats to the continuity and sustainability of the environmental programs initiated by the previous administration in a case municipality (Milne *et al.*, 2003: 7).

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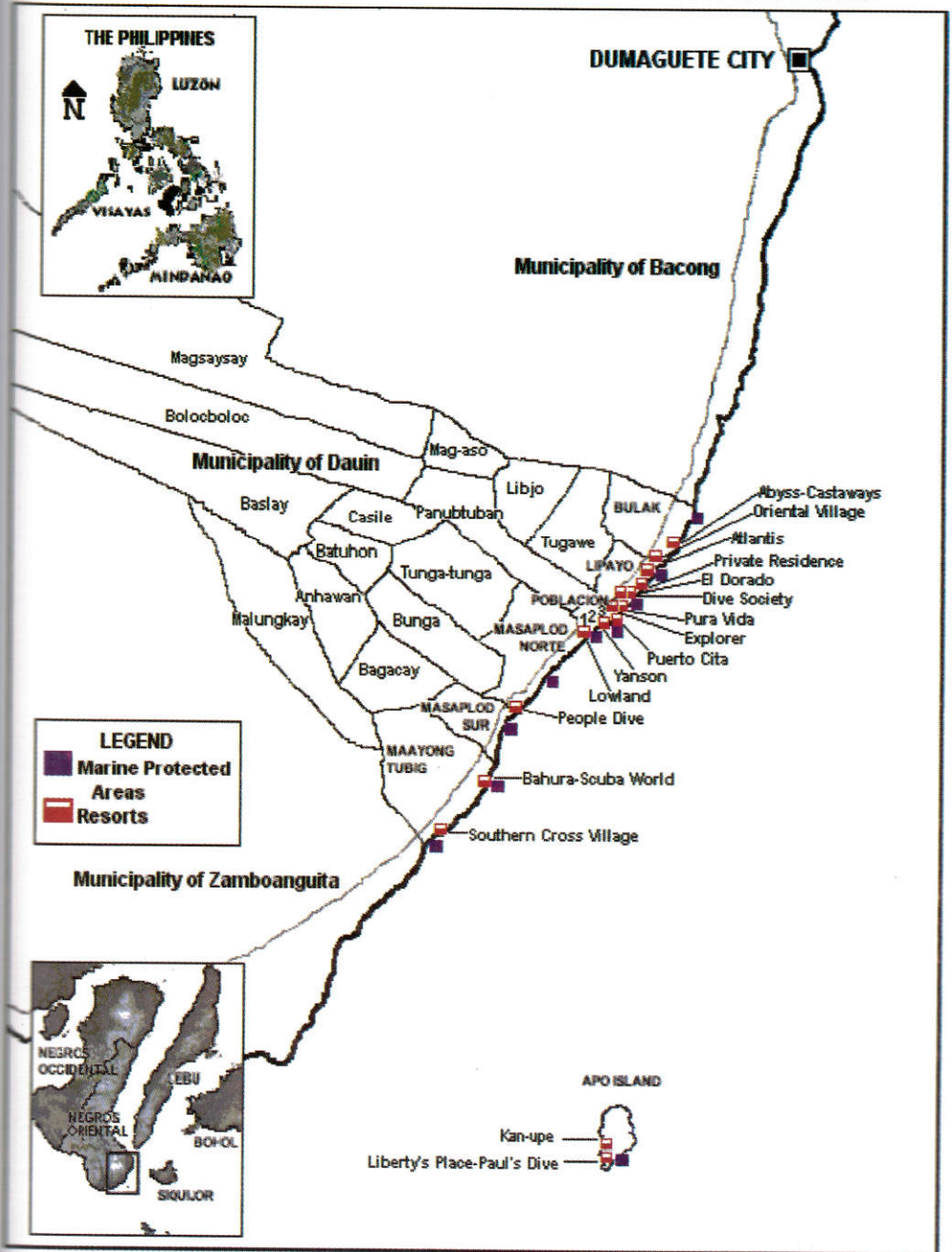
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Appendix A

Map of Dauin showing the relative location of its MPAs and resorts



Appendix B

The Municipal Hymn of Dauin

Cebuano Version	Free Translation
DAUIN KONG PINANGGA	MY BELOVED DAUIN
<i>Dauin lungsod kang madanihon Ikaw ang akong inspirasyon Ning kasingkasing ikaw ang bahandi Nga di ikabugti ug salapi</i>	Dauin such an enchanting town You're my inspiration In my heart you're my treasure That no money can measure
<i>Ang malasalamin mong tubig Garbo sa Nailig* Midagayday sa kapatagan Paghatag kinabuhì sa katawhan</i>	Your crystal clear waters The pride of Nailig Flowing down to the fields To give life to humanity
<i>Sa imong matin-awng kadagatan Mga tanggapa ug do-ot sa kaisda-an Garbo atong Apo Island Gidayeg ka sa tibo-ok kalibutan</i>	In your serene and lucid sea Corals and schools of fish abound To make us proud of Apo Island Appreciated all over the world
<i>Ang mahabog mong kabukiran Puno sa matambok nga kakahoyan Ang mga huni sa kalangaman Huyohoy ngadto sa kalasangan Chorus</i>	Your high mountains Covered with sturdy trees Where the humming of birds Becomes music of the forest Chorus
<i>O Dauin kong pinangga Tuboran sa kaalam ug panumpa Hiyas sa matahom mong kinaiyahan Panalipdan hangtud sa kahangturan (Repeat Chorus)</i>	Oh my beloved Dauin Source of wisdom and devotion A jewel of your exquisite nature Be protected forever more (Repeat Chorus)
*Name of a lake in a hinterland barangay of Dauin.	

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