

'GEAR CONFLICTS' AND CHANGING SEASCAPES IN BATANES

Maria F. Mangahas

Documents reveal that, in recent times, some of the most prominent conflicts in fishing on Batan Island in Batanes in northern Philippines stem from interest in new 'driftnet' technology for catching flying fish. On closer investigation, these in essence consist of challenges to the fishing calendar that is traditionally enforced by collectivities of fishers belonging to particular 'ports' or *vanua*. A *vanua* denotes a particular landing spot, as well as a port-polity, which is a group of fishers that is organized, and has laws and a leader, that is assembled by means of ritual at the beginning of the summer fishing season. If one sees 'vanua making' as a ritual technology for collective success, what is really at issue in the conflicts between 'traditional' and new or 'modern' technologies are distinct common property regimes and opposed landscapes: a traditional notion of community and a cooperative framework for the commons, on the one hand, coming into conflict with a modern view of atomized fishers and an 'open' sea, on the other.

Keywords: *Mataw fishing, anthropology of technology, gear conflicts, vanua, Batanes, dorado*

Introduction

'Gear conflicts' may occur when particular new fishing technologies are introduced. The new technologies seem to 'take' fish from others, to be grabbing fish that would have otherwise been caught by previously established gear. The resolution of any gear conflict entails or generates, and tests, institutions of governance or of 'resource management' over the commons. In fishing especially, access to the resources out at sea is very much about access to a physical technology – one needs first have a boat to get there after all. Any 'gear conflict' brings up the specter of violence (violence being often addressed to a fishing gear itself) expressed as a covert assertion of the perceived moral rights of certain fishers in common property.

This paper starts from two documents from the years 1989 and 1993 that were apparently addressed at resolving serious ‘gear conflicts’ in two fishing areas in the islands of Batanes, the northernmost province of the Philippines. The documents are intriguing; both were privileging the traditional rights of *mataw fishing*, a traditional hook-and-line method for catching *dorado* (*Coryphaena hippurus*) using flying fish as bait, over new ‘driftnet’ technology for catching flying fish. One document was produced by a sectoral association of fishers, and the other by a local government. The reason why they are intriguing for me is because they hint at broader aspects of technology at ardent clashes that, in fact, were (and they may still be contemporary issues¹) between *systems* of economic organization and constructions of reality: conflicts of technology are conflicts of worldview, of systems of meaning and structures and relations of production, that encompass specific orders of time and space.

These broader contexts are the focus of this paper, which seeks to make visible the implicit assumptions of fishing methods in Batanes as coherent sociotechnical systems,² and to gain a clearer view of how technological confusions and confrontations, and choices, may be produced and made. I took inspiration from material on the ‘anthropology of technology’ (Pffaffenberger 1992, Lemonier & Pffaffenberger 1989, Sigaut 1994) and Ursula Franklin's CBC lectures (Franklin 2004/1999), which stresses that any technology embodies a total system of behavior (in the Maussian sense of total – material, social, symbolic, political). Any successful technological innovation entails the engineering of acceptance of the new technology, the establishment of infrastructures to support it, and so may have revolutionary consequences for society.³

In a ‘gear conflict’ then, it is one *total* system of behavior that clashes with or makes ‘impact’ on another system of behavior. Every fishing technology thus carries with it a particular construction of the sea as a

¹ Both mataw and driftnet fishing techniques were still in use in 2010, my last visit to Batanes.

² A ‘sociotechnical system’ “refers to the distinctive technological activity that stems from the linkage of techniques and material culture to the social condition of labor” (Pffaffenberger 1992:497). Sociotechnical system-building is sociogenic, a form of social solidarity that is not simply economic or political. Another feature of sociotechnical systems is their ‘silence.’ Such systems may tend to be coordinated nonverbally, such as by means of ritual. To understand sociotechnical systems, it must be acknowledged that “they produce power and meaning as well as goods” (Pffaffenberger 1992:502).

³ E.g., industrialized technology demands there be a market (Polanyi 2001).

commons. Mediation of conflicts between gear requires taking a position on any contradictions between these images of the commons.

Focusing on technology, I have sidestepped the discourse of ‘resource management.’ ‘Management’ is instead beheld in this paper as a *technique* for sustained production. It can be an aspect of a particular technological system. My concern is not to prescribe policy solutions so much as to appreciate agency and structure at the local level. I, therefore, highlight in this paper mataw *collective technology*, rather than ‘community-based’ forms of ‘resource management,’ or even ‘customary marine tenure,’ both of which are surely valid vantage points, but which come from an *outsider's* point of view.⁴ ‘Community’ within the technological frame of traditional mataw fishing incorporates fishers, fish and the spirits/ancestors/ghosts in fishing as a collective project (Mangahas 1994a). This important sociotechnical unit is the *vanua* (or ‘port’), the group of fishers sharing the same landing site, for whom ‘making’ the *vanua* has objective physical effects on fishing productivity.

Mataw fishing technology specifically entails both individual and collective techniques, and is traditionally associated with many (taboos) prohibitions or *dagen* that are imposed on other methods of fishing during the summer fishing season. The regulation of fishing activities and the reproduction of an organized collective of fishers with laws and a leader are important consequences of the ritual ‘making’ the *vanua* or ‘port’ before the season commences, and can be appreciated as ‘ritual technology.’ Rites associated with a production calendar are no different from all the other techniques and actions undertaken for a good harvest (Condominas 1986), and they work specifically for coordination through the shared ritual calendar and ‘sociogenesis,’ generating a social group in meaningful relation to other social groups and networks, and this is most relevant in the context of widely dispersed actors in an ecological system (Pfaffenberger 1992, Lansing 1991).

The primary goal at any rate, from the point of view of the mataw fisher, is not to conserve resources but to be able to catch fish (and also to avoid misfortunes). This is explicit as their aim in observing ‘*vanua making*’ and traditional seasonal restrictions. An old fisher had explained it to me as ‘the first things the old people did so we would follow them’ otherwise the *efficacy* of fishing would be compromised (“*sapagkat kung hindi, hindi naman tinalaban ang gawin namin*”). His statement conveys that ‘*vanua*

⁴ Previously I attempted to describe the mataw institutions as a form of ‘indigenous coastal resource management’ (Mangahas 1994b).

making' and associated rites are implicated in fishing success. They also bear the weight and authority of 'tradition' – something handed down with explicit instructions for it 'to be followed' by contemporary fishers.

This context links contemporary fishing activity with the actions of preceding mataws and sets it in a landscape marked by the paths of many previous generations of fishers and by words that 'have been said there,' which present-day fishers negotiate anew each season, reproduce, and make safe (and attractive to fish) by their own careful first actions and 'cooperation.'

The context of driftnet fishing is global and more familiar: investment in modern industrialized motorboat and net technology makes fishing more 'efficient,' cutting down on time and the costs of labor. Competition for sufficient income and for profit in the market motivates continuous technological innovation. The trajectory of continually developing fishing technology and modernizing fishing fleets as an economic strategy demands that the sea should be defined as "open."

Mataw vs. driftnet

I came across two documents that are objective records of 'gear conflicts' and their mediation by external agencies.

The first document is "A Resolution Prescribing Rules and Regulations Governing Fishing Operations Within the Tudaw-Achip Fishing Grounds at Valugan, Basco, Batanes and Prescribing Penalties for Violation Thereof."

This document was made in 1989 (Appendix A) and was filed in the records of the Batanes Development Foundation, Inc., whose president had an advisory function in relation to the Basco Fishermen-Farmers' Association (BFFA). The document states that the BFFA is committed to "preserve harmony among all fishermen fishing in the Rudaw-Achip fishing grounds and thus maintain peace and unity conducive to progress and development."

Two landmarks on either side of Valugan Bay demarcate the fishing grounds being regulated – Rudaw (a prominent red hill) and Achip (a big cave). Valugan is part of Basco and has a good mix of fishers using different kinds of gear, including motorized boats. The resolution prohibits fishing using nets for flying fish in "areas where other fishermen particularly the 'mataw' are catching flying fish for dorado." Fishing with nets is "not allowed before May 15 of every year" on pain of fine of ₱100. The resolution reiterates that "all fishermen fishing in the areas shall follow all instructions, or directions given or made by the leading fisherman who was designated to

make the first fishing trip (*mandinaw no vanua*) pursuant to traditional fishing practices in the area.”

The final item hints at acts of sabotage that may have occurred at the vanua: “any person caught or found vandalizing any fishing banca, banca accessories and other fishing gear[s] or equipment” is penalized by a fine of ₱100 or replacement of the damaged gear, or both.

What is interesting about this document is its reference to relevant aspects of mataw collective technology: the date (May 15) for allowing nets to be used and mention of the “leading fisherman” designated to undertake the “first fishing trip” (*mandinaw no vanua*) for the season. This ‘leading fisherman’ is also the leader of the vanua as an organization, as the resolution reiterates, his “instructions and directions” should be followed.

The second document is a municipal ordinance: “Regulatory Ordinance for the Preservation of Cultural and Traditional Method of Fishing During the Months of March, April and May.”

The Sangguniang Bayan (Municipal Council) of Mahatao voted unanimously to pass this ordinance on May 3, 1993 (Appendix B). It upholds mataw rights over fishers using gill nets “or any method other than the traditional way of catching flying fishes which are being used as baits for the migratory dorado” in Mananiy Bay.⁵ The penalties for violation are high: ₱500 for the first offense, ₱1,000 for the second offense, and ₱2,500 “or imprisonment of 3 months or both” for the third offense.

I learned about this development in the summer of 1997. The leading fisher of the vanua Maratay informed me about the events that had happened in the summer of 1993 leading to the ordinance: Mataw Z, together with a fishing partner, deployed a driftnet for flying fish. The net belonged to an in-law who came from the neighboring town of Ivana and who also brought over his slightly larger (than the mataw fishing boats) boat to Maratay. With the driftnet they would catch flying fish early in the morning, then Mataw Z would proceed straight to mataw fishing using the netted flying fish as bait. Since he had so many baitfish, he was able to catch many dorado, as many as 10-20 in one day! I asked: “How did you feel about that?” He replied, “If he wouldn't give away some of his flying fish to us, then we would get extremely hot-headed.”

At sea, the mataws from the vanua of Diara would shout to the boat to “go back to Ivana!!” The driftnet was labeled as ‘the net of Maratay.’ In the

⁵ The local government has jurisdiction over ‘municipal waters’ extending up to 15 kilometers from the shoreline (Local Government Code of 1991).

middle of the fishing season, some serious sabotage was discovered at the vanua: two boats had been vandalized. A large square of wood had even been sawn out of one boat and fitted back in. The mataws of Maratay were outraged. But more so because they were ‘the wrong boats!’ Neither belonged to the net-using mataw, one belonged to his brother, the other to another relative. The controversial net was also stolen and was never found. The mataw whose boat had been seriously damaged was shouting that he “didn’t want to see that boat from Ivana at the vanua again!” The boat was rowed away from Maratay back to Ivana by its owner. Days later, a person that had been missing for some time and who had close ties with families of Maratay mataws (he was not a fisher himself) was found hanging from a tall tree near the vanua of Manichit, an apparent suicide. A policeman in Mahatao was among those who brought the incident to the level of municipal officials, which issued the ordinance in response to the issue.

A mataw from the other vanua of Diora explained to me that the net was very efficient. He said that the Mananioy Bay is like a cul-de-sac: when the current goes in, it swirls around and brings the flying fish inside. The net was used at strategic positions in only three places: near Racuaydi (an old settlement site along the coast of Mananioy Bay), by the cliffs of Maydac, and at Manichit (toward the north end of the bay) to block their path, and “there would be no flying fish left,” he said. I have a theory that the driftnet-using Mataw Z was the Leading Fisher for that year, which would give him the power to set a precedent of bringing a driftnet. It was rationalized as ‘helping’ to provide the other mataws with baitfish. The presence of the new gear, however, led to serious conflicts involving fishers from not only his own but all three vanuas (Maratay, Diora, and Manichit) fishing in Mananioy Bay.

The case also reveals that local government structures were relevant to resolving the gear conflict. The Ordinance cited ‘tradition’ and the priority rights of mataws specializing in catching dorado over other types of fishing by virtue of their having been practicing this livelihood since a very long time ago (they were first), rather than unformalized principles for equitable fishing that would be affected by the introduction of new gear. Meanwhile, the wording of the two documents shows that the conflicts also consist of challenges to the traditional fishing calendar. They compel us to realize the extent to which mataw technology regulates fishing activity in particular fishing grounds.

Collective technology, the 'fish of summer,' and the traditional fishing calendar

Dorado (*Coryphaena hippurus*) are best fished from the *Valugan* side of Batan Island. Valugan is a point of orientation in Mahatao and Basco based on a sense of the shape of Batan Island itself, and refers more or less to its eastern coast. The 'other side' of Valugan is *Kadpidan* (or *Chadpidan*), the coast 'at the back' (of Mt. Iraya) is *Dichud*, and the coast 'below' Valugan is *Kajbo* (site of Imnajbu town). In the summer, fishing on the Valugan side, i.e., Valugan Bay and Mananiy Bay, has traditionally been focused on dorado and flying fish.



Figure 1. Map of Batan Island showing four coastal 'sides' of the Island (Valugan, Kadpidan, Dichud, Kajbo), four vanua of the mataw (Chanpa-n, Manichit, Maratay, Diora), settlement sites (circles), and general topography.

‘Mataw’ refers to a specific technique for catching one particular fish, the golden-bellied dorado (*Coryphaena hippurus*), using hook and line and live flying fish for bait, that were in turn caught using another kind of hook and bait (crustacean). ‘Mataw’ also refers to the fisher that does this kind of fishing, and traditionally he commits to only mataw fishing for a continuous period of time during the summer months. Before driftnets entered the scene, mataw fishing was talked about in relation to the schedule to *sumuho* or fish for flying fish at night using torchlight (*suho*), and to *manayrin*, which denotes the use of a hook (*sayrin*) and line, and a sinker. Both mataw and *sumuho* are traditional methods (and also well-documented for the natives of Lanyu or Orchid Island in the territory of Taiwan in connection with rites to start the fishing season, e.g., Hsu 1982; von Brandt 1984). A highly respected elder in Mahatao told me this about the fishing in Diora:

“Manayrin could only be done in Valugan⁶ after the dismantling of the vanua, because these are the instructions of the Mandinaw nu Vanua [the ‘leading fisher’], and he has to be the one to do it. Because they said, if you manayrin using flying fish as bait it would be like sending the flying fish to the bottom. Anyway it’s not good for manayrin fishing until May, when it is already the *avayat* wind (southwest monsoon). Usually the first *avayat* is on May 10.” (Personal communication, Eduardo Balasbas, former Mayor of Mahatao/former Vice-Governor of Batanes, 1997)

The capture of dorado (locally called *arayu*), and flying fish or *dibang*, both migratory fish associated with the summer months from March to May, are prioritized by such rules. One could even say that dorado and flying fish define “summer” or *rayon*, as the intense focus of activity by many fishers for this brief period. They are referred to as the ‘fish of summer,’ *among no rayon*. The practical logic (Bourdieu 1977) of the traditional regulation of fishing activities during summertime in Mananiy Bay can be diagrammed as a binary opposition between the fishes that belong to different levels of the sea (demersal vs. pelagic species), as well as between fish that are present all year round and those that are seasonal. In contrast to the ‘surface’ migratory fish like dorado and flying fish,⁷ ‘deep-dwelling’ local fish are sometimes referred to as regular or ‘real fish,’ *uyod a among*, and are typically caught

⁶ Diora is also referred to as ‘Valugan’ in Mahatao.

⁷ Other pelagic species do come into Batanes waters: from the largest blue marlin (*malakay*) to the smallest anchovies (*yuyuno*), but do not require so many ‘beliefs’ as dorado and flying fish.

using hook, line, and sinker (*manayrin*).⁸ Interestingly, it is for the pelagic resources, which are migratory and seasonal, and perceived as coming from far away, that many regulations are imposed.

Sea surface, pelagics, seasonal, migratory, coming from far away, 'fish of summer'
 Bottom, demersals, always present, local fish, 'real fish'

Figure 2. Binary oppositions in traditional fishing.

The summer fishing season commences from the 'Making of the Vanua (*Mayvanuvanua*), after which many prohibitions or *dagen* traditionally come into effect and no other fishing is permitted outside of mataw and sumuho fishing for flying fish. Using methods for bottom-dwelling fish would by this logic 'send down' pelagics that belong to the surface. Diving, and even swimming in the vanua, are prohibited during this period. The 'fish of summer' are something of an ambiguous and sensitive (easily 'offended' or 'hurt') category; they are observed to behave enigmatically in terms of when in the season they will appear, when they will disappear, and not necessarily showing interest in the bait of the matawfishers. Following protocol, the Leading Fisher (*Mandinaw no Vanua*) is the one to signal the 'break up' of the vanua (*Kapaychava no Vanua*), which puts an end to the closed season and opens the fishing grounds to 'all other kinds of fishing.' This would usually coincide with calmer seas on the Valugan side of Batan Island late in the season as the wind shifts to southwest monsoon or *avayat*.

<u>March-April-May-June-July-August-Sept- Oct- Nov- Dec- January- February</u>		
hot and sunny	□□rain	..possible typhoons...□□□□□ sometimes very cold
"summer"	-2 week: "little summer"/"dekey a rayon"	"winter"
"rayon"	"avayat" (Southwest monsoon)	"amian" (Northeasterly)

Figure 3. The seasons.

A *vanua* denotes a particular landing spot and group of fishers. It could also be imagined as a 'clean,' orderly, and cooperative 'port-polity' in competition with other 'ports' (*vanua*), to attract fish. A *vanua* has laws (*abtas*) and a leader (the leading fisher). *Vanua* are special geological

⁸ Also by other means such as diving with a spear gun, casting 'flying' nets at the edge of the coral terrace (*manawoy*, cast nets on bamboo poles), or using small nets set during low tide.

features which allow coming ashore and going to sea in a generally dangerous coastline. There are only four vanua on the Valugan side of Batan Island: Chanpa-n, Manichit, Maratay and Diora (Fig.1). With some variations, similar rites are performed in each of these four mataw vanuas. 'Vanua making' is basically a sacrifice to give the spirits their 'share,' and to insure against 'accidents', it links the contemporary vanua with the 'vanua of the ancestors,' and serves as a home base and a source of identification of each mataw.

Joining a vanua for any mataw fisher is necessary⁹ but not difficult, and fishers may also transfer from one vanua to another from year to year, depending on personal preference, convenience to fields, or other reasons. (Some fishers may also opt out of fishing to focus on another summer occupation for a particular year.) Hence the composition of members of a vanua fluctuates from year to year, although it would usually contain many of the same members, and often there were closer ties of kinship, neighborliness or friendship among many of them. The members of a vanua monitor the day-to-day fishing fortunes among its group, and frequently assess these in relation to the entire season, to the pattern of previous seasons, and in comparison with what is heard to be happening in other vanuas.

The outcome of collective ritual (*Mayvanuvanua*, involving sacrifice of a pig, offerings of sugarcane wine, a bead, and 'payment' of a coin) for the vanua is its purification, which brings magical¹⁰ attractiveness (toward fish). Ritual words are perceived to leave an impression on the landscape and on the fish; the First Fisher of the season 'calls' the fish to their vanua, advertised as the 'most beautiful' of all.' Mataws are traditionally concerned about getting the vanua 'dirty,' which happens when taboos are broken. This desideratum for 'cleanness' also underlies selecting the appropriate leader, the performance of 'cleaning' rites for the vanua, maintaining discipline, and observing protocol among the group of fishers. The motif of 'Firstness' (or the power of First actions), runs through all the mataw rites. The Leading Fisherman for the season, as a 'good fisher' is also a part of the collective

⁹ A fisher could also conceivably fish from a vanua without 'joining' the group (participating in *Mayvanuvanua*). However, he may be deterred by the notion that misfortunes will transfer to such a one. Each fisher is required to be physically present. In case of illness, a mataw's wife would be the one to stand in as proxy during the rite (in Maratay).

¹⁰ Mataw rites can also be appreciated as part of a 'technology of enchantment' (following Gell 1999), in the sense of magic as the 'ideal technology' for effortless accomplishment of something.

technology of mataw fishing, as the one deployed on behalf of the group to persuade the fish to choose their vanua, and as the leader responsible and influential on the safety and success of the vanua. Each fisher member of the vanua is also responsible for overall fishing fortunes by their ‘cooperation.’

Thus, the vanua as a collective – a particular ‘community’ of fishers nurturing beneficial social relations with fish and spirits – can be seen as part of mataw ‘techniques’ for bringing fish home to the vanua. Competition among individual boats is subordinated to the need for working cooperatively, and instead vanuas rival other vanuas.

How traditional ritual scheduling might enable ‘complex coordination’ of a large population of resource users, how the institution of a Leading Fisher heading the vanua collective may coordinate activities and administer the fishing schedule in response to changing environmental conditions, and how the traditional calendar and organization of fishers might serve to manage ecological relationships that are not obviously linked would make a good subject for ecological study (and was beyond the scope of my research). In the Batanes situation of migratory resources and dispersed fishers belonging to different ‘ports,’ could the fishing calendar enforced by mataws and the collectivities of fishers created by their ritual technology possibly coordinate to maintain the resource base? This is an issue that I may touch on, but whose answer requires a much broader ecological, and perhaps a deeper historical, study. We may say for the moment, however, that as a system that has surely persisted a century or two (attested by observations of 19th-century Dominican missionaries (cf Gonzalez 1966), the mataw system of fishing has proven a remarkably stable, or ‘sustainable,’ means of making a living.

What may certainly be the case is that the priority placed on seasonal summer fish may have an unintended bearing on the productivity and sustainability of the fishing for stationary demersals. By giving priority to mataw fishing, an off-season for the demersal species (that are caught by bottom hook and line fishing, netfishing or speargun fishing) is effectively extended in the eastern or Valugan-side fishing grounds of Batan Island. In Valugan Bay, the ‘breakup’ of the vanua in May was formerly eagerly anticipated because lobsters and bottom-dwelling fish living there had grown large in the interim (Sergio Abela pers. com.)

The physical impact of mataw ‘ritual technology’ of vanua making is the regulation of access to resources in time and space. This scheduling of fishing activity brings to mind other traditional resource-regulating institutions in Southeast Asia, such as *sasi* (‘prohibition’) in the Maluku Islands, which had been primarily intended for coordination and maximization of the resources for a community (Zerner 1998:545). Research

on irrigation schedules regulated by water temples also comes to mind (Lansing 1991). If we consider the mataw traditions from the perspective of environmental relations, then many of the ingredients of 'modern management' are there: scheduling of fishing, limitation of access to fishing grounds, quotas, the appreciation of fishing as a dynamic interaction between fishers and mobile fish, rather than with static 'fish stocks,' and engagement of the emotions of participants (Ruddle & Satria 2010; cf Mangahas 2010).

But the distinct local vision of fishery regulation accommodates the presence of unseen spirits, and negotiates delicate social relations with fish that have sensitive feelings and the agency to allocate themselves among fishers and vanuas. Rather than conservation of local species, or even achieving equitable distribution of fishing opportunities and access to resources, the explicit concern of mataw regulations and rites is that of welcoming the migratory 'fish of summer' by maintaining a vanua or homeport that would find favor with the fish, the rationale for observing rules. Respect toward the fish or at least outwardly high regard is conveyed in taboos against carrying the fish improperly, spitting out bones when eating fish, improperly hauling the catch into the boat, etc. These prohibitions also jive with the timing of distribution, and how the catch, which is prepared into dried fillets, is traditionally not exchanged for money until after the accumulated catch has been shared out at the end of the season. In mataw rites, fish are 'cared for' and feted with 'delicious' sugarcane wine. Observing prohibitions and enforcing cooperative behavior is seen to prevent the port from being vulnerable to 'dirt.' With proper and sustained interactions with fishers, and in solidarity or 'pity' for the human condition, fish as fellow beings may be 'persuaded' to give themselves. It is along this vein that the success of fishing is meaningfully framed in terms of 'cooperation' or group solidarity.

Within this landscape, there is space for use of 'other methods of fishing,' including driftnets (whose boats also have to pass through the vanua to get to sea, which is why the vanua is also the locus of regulation), but only after the mataws have declared the restricted season over. Why must mataws take priority over other kinds of fishing? I think mataw fishing's operational context is key here. This operation of mataw fishing covers an entire season since the aim is an accumulated total catch over up to three months of fishing.

Flying fish, the market, and wider transformations

Flying fish (family *Exocoetidae*) are only an incidental requisite for mataws, who are specialists that aim for dorado. But they are also an important 'fish

of summer' that were traditionally fished at night by *sumuho'*, using attracting torches and scoopnets, and were also associated with 'beliefs' and rites. Which gives another simple opposition maintained in the traditional fishing calendar in Valugan: between *sumuho'* and *mataw*, or between fishing at night for flying fish and fishing in the daytime for dorado.

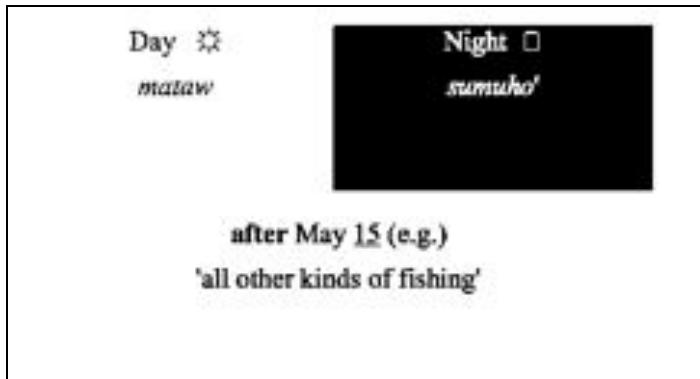


Figure 4. Traditional summer fishing calendar in Valugan (Basco and Mahatao).

Sumuho and mataw fishers did not compete for flying fish, because sumuho fishing is done at night while mataws fish in the daytime. According to some Basco fishers I interviewed in 1991, some flying fish are more active close to the shore at nighttime, and some in the daytime. The kind of flying fish caught at night by sumuho are usually slender and white, and called the *suhohen* or *suhwan* (i.e., caught by *suho* or torchlight). Whereas the flying fish typically caught by mataws are bigger, with reddish-brown 'wings,' and called *patawen* (caught using *pataw* or floats). These are the principal species of flying fish that are captured although there are also other kinds of flying fish.

There are at least six kinds of flying fish, also distinguished by size, and they usually appear in Batanes waters in the summer. *Madavit*, which are also used by mataws, are described as small, short and round, and speckled, they 'fly' more and come in schools. *Anak* are small flying fish sometimes caught by sumuho fishers. *Pa'dang* are the last wave of flying fish in the summer and so they were the ones that could be caught by driftnets which were permitted only later in the season after the mataws 'dismantled the vanua.' Driftnet technology, which is used in the daytime, now demands access to flying fish during the season in mataw fishing grounds, and therefore to directly compete with mataws.

It seems that the driftnets were introduced at least by 1986, during the visit of the new Philippine President Corazon Aquino to Batanes. Government agents from the Department of Agriculture gave away driftnets and promoted their use during this visit. Around this time, funds administered by the Batanes Development Foundation, Inc. also became available for fishers to loan in order to acquire and upgrade boats and equipment. The driftnets require larger capital investment and thus imply involvement in the cash economy. The catch from driftnets would be sold fresh immediately after fishing, and the remainder processed for drying. A regular market for fresh fish can be found in Batanes, especially among salaried government employees, and moreover since the early 1990s, an increasing number of households acquired refrigerators and so could afford to buy fresh fish for future consumption.

This transformation has also happened to *manayrin* fishing, which was formerly also undertaken simply because it is fun to do. Today it is presumed that manayrin fishers go out to fish for the cash income, but before the late 1990s the catch was usually distributed as gifts, since the fish that could not be consumed would spoil otherwise.

Meanwhile, the availability of new materials has led to the rapid evolution of many fishing technologies. Sumuho' fishing became more and more industrialized, using boats powered by motors instead of by rowing, while the lights shifted to petromax lanterns and then to battery-powered lamps. Eventually, sumuho' became less and less popular in Valugan Bay as more fishers shifted to driftnets. However, these shifts may well have introduced 'Chaos' on the commons (Gilbertson 1993); fishing conditions now include the uncertainties of the market and become less predictable from year to year. I observed in 1990-1991 that in Basco, in Valugan Bay, in the southern municipalities of Uyugan and Ivana, and on the western side of Mahatao (where there is no mataw fishing), motorized boats and driftnets were being deployed to snag flying fish in large numbers. A driftnet crew could catch a thousand flying fish in one day, as compared with a sumuho' operation that would be able to bring home a hundred or more fish in one night. The glut of flying fish for sale brought down the price of flying fish, till it would reach as low as about ₱5 per fish. In 1997, more driftnets were being deployed but the catches had declined dramatically.

Meanwhile, different vanuas are experimenting with modifications in ritual and the regulations to be imposed during the fishing season. Rituals are said to be somewhat "stable forms of collective social action" because correct ritual procedure is a matter of concern to the group as a whole, even if the meanings and functions of rites may not be that coherent to its

practitioners, or changing meanings may be attached to rituals by individuals or segments of society (Gibson 1989, citing Robertson-Smith & Durkheim). In the fishing grounds of Valugan Bay, transformation of the seascape has more successfully taken place *within* the structure of traditional practice. As mataws themselves might be interested in shifting to the new technology, at the vanua Chanpa-n the driftnets were eventually accommodated into the vanua. In 1992, a ritual officiant of Chanpa-n told me that he himself had become a driftnet fisher, but before they allowed this, they had taken the precaution of saying words during the ‘Making of the Vanua’ (Mayvanuvana) at the beginning of the season, announcing

“Do not prohibit/taboo (*Dagen nyu ava*),
spear gun fishing, net fishing, compresor fishing,
and all other kinds of fishing,
and come here to our Vanua,
O, ‘fish of summer, to Chanpa-n.”

In this way, the 1989 resolution cited earlier had been effectively rescinded. The ritual officiant observed, however, that flying fish catches have fallen since that time, and it has become necessary to go farther and farther out to sea to find flying fish, which proves the validity of traditional *dagen*. However, he did not seem to think that they would go back to the old restrictions.

In March 1997, I met the President of the BFFA and asked him how things were going at Chanpa-n. He told me that there are some ‘new procedures’ (*bagong patakaran*): *Sumuho*’ and driftnet ‘have been combined’ and are represented by the ‘Leading Fisher for Flying Fish.’ There are thus *two* Leading Fishers in Chanpa-n, one for flying fish and one for dorado. The ‘Leading Fisher for Flying Fish’ “goes out in the daytime instead of at night,” he said, “and from driftnet fishing, they often go straight to trolling for dorado.” “But they always give flying fish away ‘for free’ to mataws,” he continued. It seems that the gear conflicts continue to be discussed within the tradition of organizing the fishers and setting seasonal regulations, or of ‘Making the Vanua.’ This time the traditional claim by mataw fishers as against the driftnet competition for flying fish is resolved by compelling driftnet fishers to submit to a kind of ‘tax’ on their catch in support of the bait needs of mataws.

Conclusion: changing seascapes in Batanes

The situation surely continues to evolve in Valugan Bay, not to mention the other fishing grounds in Batanes.

Given the developments discussed above, Mananiy Bay is quite an extraordinary fishing area in Batanes as fishers there commit to only mataw fishing in the traditional fashion during the summer. This seems exceptional since in all the other waters off Batan Island, competitive industrial technologies, such as mechanized boats and gear made of commercial synthetic materials, are increasingly being deployed. The mataws in Mananiy Bay, as with most fishers in Batanes, are interested in and aware of new technologies and even participate in these developments, however from year to year traditional mataw fishing still continues to hold the priority in the operational seasonal calendar. The use of a driftnet in 1993 enmeshed the vanuas in a serious gear conflict which was resolved in the level of local government, perhaps establishing a regulation that is relatively more visible and more difficult to rescind.

One reason why this may be so is also in relation to the vanua's location: the mataws are not interested to invest in motorized boats because a boat using a sail and oars still maneuvers easier and faster out at sea than one depending on a motor; a larger boat would be grounded during big waves whereas the mataw's smaller *tatayas* are able to negotiate big waves. Diora's vanua has a reputation for being one of the more dangerous vanuas when waves are big. Manichit and Maratay meanwhile are only accessed by steep and narrow paths over the hills where it would also be difficult to drag a big boat through to bring it down to the beach for the summer.

Another reason is economic: mataws in Mahatao have developed more complex shares agreements where their product may be valued over money as payment for labor or other exchanges than in the local market context.

Batanes fishers pursuing flying fish and dorado are caught up in competing seascapes and relations of production. The struggle in these 'gear conflicts' involves redefining the landscape and inscribing appropriate patterns of authority and of time, the coordination of activities according to the ecological and ritual calendar, achieving some kind of balance with other technologies, and addressing changing conditions each year due to the dynamic behavior of the weather, the fish, and the fishers.

I have highlighted creative negotiations in seeking to resolve the oppositions between traditional collective technologies and modern individualistic fishing technologies. Modern gear are set in the market context and demand continuous innovation, which favors atomized competition in which each fisher is 'on his own' in an 'open' sea. However, the seasonal regulatory framework that is part of the traditional technology of mataw fishing opposes this. On the other hand, there appears to be sufficient

flexibility within the ritual traditions to continue to serve as venues for creating order in the fishing grounds.

Batanes fisheries and the local government structure also seem to be reluctant to commit to the 'open' sea, at least in Mananoy Bay, which is the strength of tradition for the moment. Perhaps this is also because the context for fishing is still a *local* market; relative remoteness from larger market contexts makes collective 'Vanua making' still a viable and responsive technology for them. This ordering is vulnerable to the many pressures brought by the new technological systems. The balance may tip once too many fishers invest in the new gear or decide to commit to new technology. Most likely, further 'gear conflicts' between 'traditional' and 'modern' technologies will continue to redefine the common property regime.

Acknowledgments

B. Lynne Milgram and Jay Batongbacal are gratefully acknowledged for their help regarding references on technology. Field research in Batanes was made possible in 1990-1991 with support from the Center for Integrative and Development Studies (University of the Philippines Diliman) in 1994 through the U.P. Anthropology Field School, and in 1997 by a Wenner-Gren Foundation for the Anthropological Sciences Pre-Doctoral Grant. This paper was presented at the Eleventh Conference of the International Association for the Study of Common Property, in Bali, Indonesia, June 19-23, 2006.

References

- Acheson, James M. (1988). *The Harbor Gangs of Maine*. Hanover: University Press of New England.
- Agrawal, Arun. (2003). Sustainable governance of common-pool resources: Context, method, and politics. *Annual Review of Anthropology*, 32:243-262.
- Bourdieu, Pierre. (1977). *Outline of a Theory of Practice*. Cambridge: Cambridge University Press.
- Condominas, Georges. (1986). Ritual technology in Mnong Gar swidden agriculture. In Irene Nørlund, Sven Cederroth, & Ingela Gerdin (Eds.), *Rice Societies: Asian Problems and Prospects* (pp. 28-46). London and Riverdale, MD: Curzon Press, The Riverdale Company, and the Scandinavian Institute of Asian Studies.
- Franklin, Ursula. (2004/1999). *The Real World of Technology*. Revised edition. Toronto: House of Anansi Press, Inc.

- Froese, R. and D. Pauly (Editors). (2004). *FishBase*. World Wide Web electronic publication. www.fishbase.org, version (12/2004).
- Galindez, Rosanna G. (1996). *Fishing and Fish Preserving Practices and Related Beliefs among Selected Mataws in Mahatao: Their Implications for Livelihood and Education Management*. MA Thesis in Education Management, St. Dominic's College of Batanes, Philippines.
- Gell, Alfred. (1999). The enchantment of technology and the technology of enchantment. In Eric Hirsch (Ed.), *The Art of Anthropology: Essays and Diagrams* (pp. 159-186). London: Athlone Press.
- Gibson, Thomas. (1989). Collective ritual as a model for corporate economic activity among the Buid of Mindoro. In Susan D. Russell & Clark E. Cunningham (Eds.), *Changing Lives, Changing Rites: Ritual and Social Dynamics in Philippine and Indonesian Uplands* (pp. 63-80). Michigan Studies of South and Southeast Asia, No. 1. Ann Arbor: University of Michigan Center for South and Southeast Asian Studies.
- Gilbertson, Neal. (1993). Chaos on the commons. *MAST*, 6(1/2):74-91
- Gonzalez, P. Julio, O.P. (1966). *The Batanes Islands*. Manila: University of Santo Tomas Press.
- Gudeman, Stephen. (1996). Sketches, qualms, and other thoughts on intellectual property rights. In Stephen B. Brush & Doreen Stabinsky (Eds.), *Valuing Local Knowledge: Indigenous Peoples and Intellectual Property Rights* (pp. 102-121). Washington, D.C.: Island Press.
- Hornedo, Florentino. (1989). Development begins with self-help. *Payuhwan*, 1(1):3.
- Hsu, Ying-Chou. (1982). *Yami Fishing Practices – Migratory Fish*. Taiwan Aborigine Monograph Series 1. Taipei: Southern Materials Center, Inc.
- Hviding, Edvard. (1996). Traditional institutions and their role in contemporary coastal resource management in the Pacific Islands. *Naga: The ICLARM Quarterly*, 14(4):3-6.
- Lansing, Stephen. (1991). *Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali*. New Jersey: University of Princeton Press.
- Lemonnier, Pierre and Bryan Pfaffenberger. (1989, September). Towards an anthropology of technology. *Man: New Series*, 24(3):526-527
- Local Government Code*. (1991). Republic of the Philippines.
- Mangahas, Maria. (1994a). *Mataw, Amung nu Rayon, Anitu/Man, the 'Fish of Summer,' and the Spirits: An Ethnography of Mataw Fishing in Batanes*. MA Thesis, College of Social Sciences and Philosophy, University of the Philippines, Diliman.

- Mangahas, Maria. (1994b). *Indigenous Coastal Resource Management: The Case of Mataw Fishing in Batanes*. Quezon City: Center for Integrative and Development Studies (State of the Nation Series), University of the Philippines, Diliman, Quezon City
- Mangahas, Maria. (2004). Fishing and performing fair shares. *AghamTao*, 10:51-80.
- Mangahas, Maria (2010). Ritual regulation of seasonal fishing in Batanes, Philippines. In Kenneth Ruddle & Arif Satria (Eds.), *Managing Coastal and Inland Waters: Pre-existing Aquatic Management Systems in Southeast Asia* (pp. 77-98). Dordrecht and Heidelberg: Springer.
- Pfaffenberger, Bryan. (1988). Fetishised objects and humanised nature: Towards an anthropology of technology. *MAN*, 23(2):236-252.
- Pfaffenberger, Bryan. (1992). Social anthropology of technology. *Annual Review of Anthropology* 21:491-516.
- Peterson, Nicholas and Bruce Rigsby. (1998). *Customary Marine Tenure in Australia*. Oceania Monograph 48. New South Wales: Sydney University Press.
- Polanyi, Karl. (2001/1944). *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.
- Recio, Dolores. (1973) *Ivatan Medical Practices*. PhD Dissertation. University of California, Los Angeles.
- Ruddle, Kenneth and Arif Satria (Eds.). (2010). *Managing Coastal and Inland Waters: Pre-existing Aquatic Management Systems in Southeast Asia*. Dordrecht and Heidelberg: Springer.
- Sigaut, François. (1994). Technology. In Tim Ingold (Ed.), *Companion Encyclopedia of Anthropology* (pp. 420-459). London and New York: Routledge.
- von Brandt, Andres. (1984). The fishery of Lan Yu (Botel Tobago): An old fishing culture. In B. Gunda (Ed.), *The Fishing Culture of the World: Studies in Ethnography, Cultural Ecology and Folklore* (pp. 469-527). Budapest: Akadémiai Kiadó.
- Yamada, Yukihiro. (1967). Fishing economy of the Itbayat, Batanes, Philippines with special reference to its vocabulary. *Asian Studies*, V(1):137-219.
- Zerner, Charles. (1998). Men, molluscs and the marine environment in the Maluku Islands: Imagining customary law and institutions in Eastern Indonesia, 1870-1992. In Richard H. Grove, Vinita Damodaran, & Satpal Sangwan (Eds.), *Nature and the Orient: The Environmental History of South and Southeast Asia* (pp. 535-571). Delhi: Oxford University Press.

APPENDIX A

EXCERPTS FROM THE MINUTES OF BASCO FISHERMEN-FARMERS ASSOCIATION MEETING HELD ON MARCH 12, 1989 AT PORT VALUGAN (CHAN-PAAN)

A RESOLUTION PRESCRIBING RULES AND REGULATIONS GOVERNING FISHING OPERATIONS WITHIN THE TUDAW- ACHIP FISHING GROUNDS AT VALUGAN, BASCO, BATANES AND PRESCRIBING PENALTIES FOR VIOLATION THEREOF.

WHEREAS the Basco Fishermen-Farmers Association is committed to preserve harmony among all fishermen fishing in the Rudaw-Achiph fishing grounds and thus maintain peace and unity conducive to progress and development; and

WHEREAS it has been observed that there are some fishermen who disregard the rights and welfare of other fishermen most particularly those engaged in dorado fishing;

NOW THEREFORE, be it resolved as it is hereby bodily resolved;

1. That no fisherman or group of fishermen are allowed to catch flying fish with nets in areas where other fishermen particularly the "mataw" are catching flying fish for dorado (arayu) bait within the areas between Rudaw and Achiph.
2. That no fisherman or group of fishermen are allowed to fish with nets beyond the area designated by the group/association before May 15 of every year. Any person found violating this regulation shall be penalized with a fine of one hundred (100.00) pesos.
3. That all fishermen fishing in the areas shall follow all instructions, or directions given or made by the leading fisherman who was designated to make the first fishing trip mandinaw no vanua) pursuant to traditional fishing practices in the area.
4. That any person caught or found vandalizing any fishing banca, banca accessories and other fishing gears or equipments shall be penalized by a fine of one hundred (100.00) pesos or to change the damaged equipment or both fine or changing of the damaged equipment at the description of the BFFA Officers.

Unanimously approved by the body,

Certified true and correct:

Tomas Batan
President, Valugan Port Chapter
BFFA Vice-President

Quirino Gabotero
President, Basco Fishermen-Farmers
Assn

APPENDIX B

Republic of the Philippines
 MUNICIPALITY OF MAHATAO BATANES
 OFFICE OF THE SANGGUNIANG BAYAN
 Introduced by: Hon. Felipe B. Fajelga

ORDINANCE NO. 03-03
 REGULATORY ORDINANCE FOR THE PRESERVATION OF
 CULTURAL AND TRADITIONAL METHODS OF FISHING DURING
 THE MONTHS OF MARCH, APRIL AND MAY

BE IT ORDAINED, by the Sangguniang Bayan of Mahatao, province of Batanes;

Sec. 1. Title – This shall be known as a regulatory ordinance for the preservation of cultural and traditional method of fishing during the months of March, April and May.

Sec. 2. Scope – This ordinance shall regulate the preservation of cultural and traditional methods of capturing dorados and other migratory fishes within the municipal waters of Mananiyo Bay.

Sec. 3. It is strictly prohibited for any “matao” to use gill nets or any method other than the traditional way of catching flying fishes which are being used as baits for the migratory dorados on both sides of the restricted area indicated herein.

Sec. 4. Any fishers aside from “mataos” are prohibited to cast their gill nets intended for flying fishes inside the area herein described from Dispo Creek running perpendicular to an intersecting area between Mangavato and Pandangan pts. Gill net restrictions on this area shall be from the month of March, April and May. All other months are not covered by this restriction.

Sec. 5. Penal Provision – Violation of this ordinance shall be subject to the following:

- a) First offence - - - - - 500.00
- b) Second offence - -1,500.00
- c) Third offence - 2,500.00 or imprisonment of 3 months upon discretion of the court

Sec. 6. This ordinance shall take effect immediately after its approval.

Voting on the foregoing ordinance was as follows:

AYES: Kagawad Alviso, Kagawad Faelga, Kagawad Galarosa, Kagawad Fabre, Kagawad Maduro, Kagawad Poncio, Kagawad Rarela, Kagawad Cariaso and Kagawad Rareza

NAYS: None

Approved: May 3, 1993

APPENDIX C

Technography of Mataw Fishing

Sigaut (1994) defines an operation as “the smallest possible change that can be fully observed.” He notes that technical facts (or intentional actions to achieve a physical change in something) are social facts that can be compared with alternative ways of carrying out a given operation. An operation is defined by its location on a production path (or ‘sequence of operations’).

The collective technology of mataw fishing regulates fishing activities based on two principles: ‘cleanness’ and the setting of good precedents. *Mayvanuvanua* (‘Vanua making’) and *Umdinaw du Vanua* (the ‘First Fishing Trip’) at the beginning of the season brings about or ‘constructs’ a vanua – a community in which man, fish, and spirits are drawn together within a framework of social relations. Mataw ritual technology initiates diplomatic relations with the spirits/ancestors, ‘pays’ them their due share and acknowledges their presence. The Leading Fisher, representing the vanua, invites fish from foreign places. The date to perform each operation should be auspicious, this is considered carefully and usually by consulting the *pilaton* (a horoscope/almanac).

Figures I and II outline the sequence of techniques or operations in mataw fishing, which has two levels: individual and collective.

Figure I.

The Sequence Of Operations in Mataw Fishing: Collective Techniques

OPERATION	TIME
1 – <i>Mayvanuvanua</i> / ‘Making the Port’	e.g. March 1
2 – <i>Umdinaw nu Vanua</i> / ‘First Fishing Trip’ (by the Leading Fisher)	e.g. March 5. Mataw fishing commences after a successful first fishing trip by the Leading Fisher.
3 – <i>Maynamunamu</i> / ‘Cleaning’	Usually midway through the season, at least once, e.g., April 14
4 – <i>Kapaychava' nu Vanua</i> / ‘Dismantling the Vanua’	Date to be decided by the Leading Fisher, usually after the first week of May. Other fishing techniques are permitted once the vanua is dismantled.

Individual mataws fish alone without any crew. However, there is an important division of labor to make fishing more efficient. Live bait supply of shrimps, small rock crabs (*kayang*), or coconut crabs (*tatus*; Sn. *Burgos latro*) is maintained by the *mamedberen* (bait supplier) throughout the season. Usually, freshwater shrimps are taken from the streams, the rock crabs are fished out from seaside rocks using a split pole device, and giant coconut crabs are hunted in the forest using traps. Coconut crabs are an expensive delicacy in Batanes. Nevertheless, these may even be purchased by mataws if no other bait is available. Lobsters are used only infrequently since they cannot be kept alive for long. The live bait are kept in boxes or in baskets placed in the stream near the home of a mataw.

Figure II. Mataw Fishing: Individual Techniques

a. Organization of Production

OPERATION	TIME
<p>1 – preparatory arrangements and shares contracts for the means of production / division of labor</p> <p><i>bedberen</i> (bait supply), <i>hana'</i> (salt), <i>tataya</i> (boat), <i>warawara</i> (fishing gear), <i>mangpid</i> (taking the boat from one side of the island to the other [only in Maratay and Manichit])</p> <p>optional contracts: e.g., <i>manala'</i> (fisher's helper) e.g., to hire farmhands: <i>mamayit</i> (weeding)</p> <p><i>araro</i> (plowing): e.g., to borrow farmland [only in Mahatao]; others: e.g., firewood, fuel, construction supplies</p> <p>Preparation of required facilities: <i>ralawan</i> (work table for processing the catch), <i>rakayan</i> (drying structure), <i>pañisanan</i> (fieldhouse with hearth)</p>	<p>All arrangements and preparations have been made by the beginning of summer.</p>
<p>2 – <i>Payatay</i> / 'Sharing-out'</p>	<p>End of the season /e.g., May 25</p>

b. A Fishing Day

OPERATION	TIME
Fishing	
1 – (through a <i>mamedberen</i> or bait fisher): obtaining a supply of bait for flying fish	A mataw fisher ideally sets out to sea before sunrise and is back before noontime.
2 - fishing for flying fish	
3 - <i>Mangarayu</i> / trolling for dorado using flying fish bait	
Processing the catch	
1 – filleting dorado (<i>paypinpin</i>)	1- immediately after the fishing trip
2 – salting	2- overnight
3 – drying	3- about 3 days in the sun. The accumulated dried catch may also be cared for by a fisher's helper, or by his wife or children.
Maintaining the catch in dry storage	(until the end of the season)
Optional: <i>Maynamunamu</i> / ‘Cleaning’	Before or after fishing

To catch flying fish: Going out to sea early in the morning, a mataw fisher heads to any spot in the Bay where he would like to commence fishing. He sets out several floats, to each of which is tied a distinct kind of hook called the *yuyus*. As soon as the float jerks, signaling a flying fish has swallowed the bait, the fisher gives chase, rowing quickly, and retrieves the flying fish from the *yuyus*, which is designed to as to be easily removed and to inflict minimal damage.

Dorado and flying fish are surface-swimming fish that are brought by sea currents (*riyes*) while at the same time swimming contrary to the current. Mataws welcome strong currents because they are said to bring more fish. The currents are stronger during the day and weaker at night during the summertime. During ‘winter’ the opposite is true, currents are stronger at night and weaker by day. Batanes fishers use the currents, allowing themselves to be drifted one way, and waiting for another current to carry them back, and this may possibly form part of fishing knowledge that makes a big difference in fishing success. Some currents are favored by fishermen since they bring fish nearer to shore. Flying fish that were brought by the current to rocky areas are called *pina'sed*.

Fishing for dorado: A live flying fish will then be attached to a large barbed hook (#9 or #10) tied to the *ichet*, which is a short line about 2-3 feet in length, and which is then tied for the time being to the boat, keeping the fish in the water. The *ichet* has previously been labored over by the mataw in his spare time to wrap it with an extra layer of fibers for protection from being snapped by the teeth of the dorado; it has the hook at one end, then the *itumid* (a 3-cm. short piece of wood dangling on a string about one hand's breadth from the hook), and at the other end a swivel to which can be attached the long fishing line (*tuyungan*) when the time comes to deploy it. The hook goes under one 'wing' of the flying fish, tied firmly to its body, with the *itumid* placed in its mouth. The hook faces toward the head of the flying fish because dorado chasing flying fish are said to turn quickly and bite them head-first.

Once a mataw already has a few flying fish, he takes an *ichet*, connects it to his long line, and unfurls his sail to start trolling for dorado. A hooked dorado is 'coaxed' into the boat and then is briefly wrestled and bent double so that its hooked mouth is tied to its tail by the *ichet* to prevent it from jumping out of the boat.

Coming ashore, the catch is rinsed in the sea and the *riyal* or bile sac is removed. The fish are arranged neatly in the *pingga*" or carrying pole, they are then taken home to be processed for drying. The final product takes the form of a dried fillet of dorado. The style of preparing the fillets is standard for all mataws (for more details see Galindez 1996.) Dried fillets are stored above the hearth in the fieldhouse until the time comes for dividing-up and sharing them out following shares contracts.

On 'Cleaning': This is intended to counter the effects of 'dirt' which jinxes the fisher. The fisher keeps (in dried form) the First Fish that he caught for the season, and he would speak to it, offering it 'delicious' sugarcane wine. The pouring of alcohol brings the image of 'washing,' and this cathartic action is aimed at the 'hurt feelings' of fish due to improper human behavior or violation of prohibitions or taboos. Other objects used in cleaning rites are a blue-green bead and a piece of copper or coin.

In old times, 'dirt' could be seen as having been intentionally cast (by another fisher), or as a contamination that the fisher had come into contact with unintendedly. One implication of the concern for "cleanness" is that the boat, gear, and person of the fisher are supposed to be kept literally 'clean.' Fishers in former times were said to minutely examine their boats to check if fish bones might have been inserted in the cracks. The boat would be 'cleaned' by burning cogon grass around it or by rubbing it with a sweet-

smelling grass. Today however, 'cleaning' bears the most conflictual load as superstitious action that is 'outdated' in today's modern time.

Modernizing mataw techniques: The individual and collective mataw technologies have also undergone their own transformations and innovations. A few notes on how the techniques and equipment of mataws and of different vanua collectives are not undifferentiated, and have evolved as well:

Personal preferences and styles of fishing vary among individual mataws. The long fishing line (*tuyungan*) can be used *misamorongan* or with hooks attached on either end. Many mataws take along a spare *solid* nylon fishing line as an extra line, apart from the traditional home-made stranded *tuyungan*. A mataw might bring seven hooks, six for three *tuyungan* *misamorongan*-style, and one hook for a solid line. According to a Leading Fisher, his mataw father would bring eight fishing lines to sea, but he himself only uses five, and he does not like *misamorongan* because it is hard to arrange neatly in the boat.

Apparently, present-day mataws are using smaller hooks compared with previous generations. Commercial hooks of Norwegian make are favored, and are available in local variety stores or purchased from Chinatown in Manila. The hooks have barbs, and are also said to be 'lighter.' Mataws also shape their own hooks out of pieces of found materials, such as metal wires and clips drifted from Taiwanese fishing vessels.

Other 'drifted' resources, such as water bottles, nets, bouys, and floats, are collected and modified for fishing or recycled into other useful things by Batanes people generally. The fishing line can be made out of recycled Taiwanese rope or net fibers and has come a long way from the time when it was made out of fiber from the *hasu'* plant, which produced a much thicker line. Commercial nylon and the solid one-strand nylon made of *tansi*, which is available in local stores, are also used.

The new industrial materials makes the work 'easier.' With indigenous materials, the manufacture of gear had been much more labor-intensive. Among the innovations are the use of styrofoam and plastic water bottles as floats (instead of a species of small squash once grown specifically for making into floats), and commercial Vulcaseal™ to caulk the boat instead of *varuk* (cotton-like fiber from the roots of the *varuk* tree).

Power tools have significantly sped up the labor in boat making. Many mataws in Mahatao purchased their boats from the same boat-makers outfitting those using inboard motors and driftnets. In 1997, there were three fulltime boat-making workshops in Basco. One proprietor told me that since he started in the early 1990s he has already made more than 30 inboard motor

boats. He has also been converting a lot of boats designed for outboard motors to shift to inboard, said to be 'easier to repair.' His customers were planning to use their boats for many types of fishing: compressor, trolling with hooks and lines, and driftnets, in waters around Basco, Sabtang, Itbayat, and the smaller uninhabited islands.

Many mataw fishers learn fishing mataw as children taken along on fishing trips by their fathers, relatives or friends. They practice on their own and pick up tips from other mataws, and much depends on individual initiative. The old mataws attribute improved catches to improvements in the technology. They also cited more restrictions that set catch quotas before. A mataw was supposed to head for shore once he had already caught nine fish. Only after landing his catch could he 'go out to sea again.'

Some techniques have gone out of fashion among the mataws, like a method of catching flying fish called *paula-ulay*. This made use of a long line with the *yuyus* for catching flying fish attached at one end. "If you set out early, you can catch flying fish at night, you let your line out after leaving the vanua, and maybe by the time you reach (the cliff at the far end of Mananioy Bay), you have a flying fish already."

However the specifics of gear technology are not a theme of everyday talk among contemporary mataws. After fishing, they usually tell about what part of the Bay they went to, and how many flying fish they had, how many dorado 'came' to them, and how they got fish from other fishers that were approached by dorado. Only when I interviewed some mataws about the details of their gear did their talk about fishing suddenly shift, and I heard a sentence that could have come straight from fishers in any other part of the Philippines: "people have become smarter, but dorado have become smarter too," and they started to talk about fishing as a contest of wits between fisher and fish.

Maria F. Mangahas is Associate Professor at the Department of Anthropology at the University of the Philippines Diliman.

Email: maria.mangahas@gmail.com