# TRADITIONAL MARINE RESOURCE MANAGEMENT IN VANUATU : WORLD VIEWS IN TRANSFORMATION; SACRED & PROFANE [1]

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## ABSTRACT

Much of the marine related traditional knowledge held by fishers in Vanuatu is concerned with enhancing their catch more than directly conserving the resources. However, the management of marine resources equates with the long-term survival of the community and thus a cosmology evolved over time to sustain these resources and hence the communities which depend on them. This system, enshrined in local custom, follows natural cycles of abundance for the various resources available and depends upon the respect for the rules of custom devised by their forefathers and passed down to the present generation. In addition, it is often the rules associated with the fabrication and deployment of traditional fishing gear and techniques that serves to manage the resources. The fabrication of these fishing devices also requires an extensive knowledge of the forest resources found far from the sea. A number of other customs, seemingly unrelated to marine resource management, also serve to directly conserve the marine resources.

Events associated with the arrival of Europeans and introduction of Christianity has initiated a process of transformation of these traditional cosmologies and practices related to marine resource use and management. More recently the forces of development and globalization have emerged to continue this transformation. The trend from a primarily culturally motivated regime of marine resource management is consequently being transformed into a commercially motivated system, that is from the sacred to the profane, in response to these external forces.

## INTRODUCTION

Vanuatu is a Y- shaped archipelago roughly 1,000 km long located in the western South Pacific between 12 and 22 degrees South latitude (see Figure 1). Vanuatu means "Our Land" and was an appropriate name taken at Independence from the joint colonial rule of England and France in 1980. There are a total of 82 islands, mostly volcanic in origin, 70 of which are inhabited. Most of the islands are surrounded by narrow fringing reefs of limited size due to the steep nature of volcanic islands. There is only a limited number of areas with highly productive ecosystems such as mangroves, estuaries and lagoons. The reef areas, although limited, are non-the-less highly productive and support a high diversity of fish and invertebrates.

The population of 187,000 (as of 1999) is predominantly Melanesian. Approximately 79% of the population today lives in rural areas following a predominantly subsistence and traditional lifestyle. The term traditional used here is meant to refer to practices used prior to the arrival of Europeans in significant numbers starting in the mid-1800s. Root crops such as yam, taro, kumala and manioc are staples along with banana, pawpaw, plantain, breadfruit and numerous other fruits as well as various types of nuts. Wild birds, giant fruit bats, freshwater


Figure 1. Map of Vanuatu

prawn, fish and eels as well as domestic pigs and chickens introduced by the early colonists were traditional sources of animal protein in addition to various types of seafood. These include turtles, dugongs, numerous types of fish and shellfish, crabs including the large terrestrial coconut crab, as well as octopus, spiny and slipper lobsters, urchins, giant clams and many other marine invertebrates.

[1] The title and theme of this paper was inspired by the book 'The Sacred & the Profane, The Nature of Religion' by Mircea Eliade.

A number of factors affect food security on the islands. There are about 5 active volcanoes today in Vanuatu that may cover gardens and villages with ash and acid rains as well as molten lava on occasion. Cyclones are liable to occur from November till April damaging gardens, fruit and nut trees as well as impacting coral reefs. Tsunamis and earthquakes, floods and droughts are also a regular part of life in these islands. A number of systems was developed to provide food security in light of these threats in addition to keeping pigs and chickens, such as storing fermented fruits and sourcing a number of other foods not normally eaten except in times of need. The sea is also a source of much needed protein after a natural disaster has destroyed your food crops, provided it wasn't already over harvested. The regularity of these natural events impacting food security was perhaps also significant motivation to keep the reefs bountiful much like the idea behind 'saving for a rainy day'.

In addition, the practice of 'giant clam gardens' was also utilized in many coastal areas. This practice consisted of families gathering a number of giant clams into a small area in front of the village on the inside of the reef for their exclusive use in times of need. This practice is also considered to increase reproductive success by maintaining close proximity of the breeding population that depends on external fertilization. Thus, it may also be considered a management strategy.

There is great linguistic/cultural diversity found amongst these lush tropical high islands with currently 113 different Austronesian languages now spoken (Tryon, 1996). There were in fact more languages spoken in the past, but massive depopulation associated with European contact primarily through the introduction of diseases reduced this number. There are also numerous Polynesian Outliers, including the islands of Futuna, Aniwa, Mele, Ifira as well as three villages on Emae Island. Many other islands also exhibit varying degrees of Polynesian influences.

Each of the 113 language groups currently found in Vanuatu represents a people with different oral histories, cosmologies, customs and traditions. Based on these differences, each of the 113 linguistic groups represents a distinct cultural group within Vanuatu. With its relatively small population Vanuatu thus has the highest cultural diversity per capita in the world, and this often makes it difficult to generalize about the customs, including the various marine resource management traditions found throughout Vanuatu.

A new language, called Bislama, was invented during colonial times to help overcome the difficulties in communication with the first Europeans and amongst the different islands. It is a unique form of Melanesian Pidgin based mainly on English, but also incorporating French and some of the vernacular languages. Its name stems from its association with early contact with European traders, notably the Beche-de-mer (dried sea cucumber) traders. Bislama, one of the three official 'national languages' is the most commonly spoken language in the country's mixed urban centres, along with some English and French.

The use of the word 'custom' perhaps requires some clarification. In this context, it is used to denote the contemporary expression of the ancient traditions which of course are not static, but are in constant flux with the flow of new ideas and circumstances demanding adaptation of inherited traditions. The continuous flow and migration of people and ideas in Vanuatu throughout its history cannot be over-emphasized. Rather than leading to a homogenization of customs in Vanuatu it has probably been more responsible for its startling diversity through the admixture of various ideas, peoples, customs and traditions. '*Kastom*' is the Bislama term commonly used by ni-Vanuatu (people of Vanuatu) to collectively denote their inherited traditions and customs. The term is often used to contrast with recently introduced Christian beliefs.

Christianity was introduced slowly some 150 years ago, primarily via the Presbyterian, Anglican and Catholic faiths initially. Most islands in Vanuatu did not quickly embrace these new religions and many missionaries and Polynesian catechists employed in the missionization of Vanuatu met their demise in cooking ovens at the hands of islanders. Peter Dillion, an early 'man of enterprise' in the South Seas remarked on his visit to Erromango (also known as Martyrs Isle) in search of sandalwood in 1825 that "their general disposition indicates a more permanent attachment to barbarous feeling and habits than has hitherto been found in any part of the South Sea"(Davidson, 1956:103).

His comment indicates how deeply rooted the island *kastoms* were and foreshadows how their world view was not about to change so quickly for the benefit of a few trade items. More recently, numerous other more obscure Christian denominations (Assemblies of God, Seven Day Adventists, Holiness Fellowship) have become increasingly popular. In some areas, the two belief systems, *kastom* and Christian, are in open conflict with each other, in other areas they have managed to harmonize,

as it is often said by those who speak of it, peace. In some areas people have only been converted in the last 30 years or less; in a few areas people have completely rejected converting to Christianity and choose to maintain only their *kastom* beliefs.

These recently introduced Christian beliefs overlie the much stronger *kastom* belief systems to varying degrees on the different islands. In virtually every community of Vanuatu and even in the urban areas, various aspects of *kastom* remain strong and are significant forces in people's lives. For example, the nature of people's relationships with others is still dictated largely by kastom protocol and the firm belief in sorcery, and the intervention of the spirit world is still very much alive and continues to influence peoples behavior.

One must consider that Christianity has only been received relatively recently, whereas *kastom* has been around for some thousands of years. Perhaps a useful metaphor is that *kastom* is like a deep ocean swell, powerful- almost immutable- and originating a long way off, a long time ago, while Christianity is like the small wind-driven waves or ripples found on the swell's surface. One is deeply rooted while the other is superficial. It takes a long, long time of blowing for a new wind direction to finally alter an ocean swell.

The traditional fishing methods of the islands varied somewhat amongst cultural groups. Most of the harvesting, however, was focused on the nearshore reefs. Reef gleaning for various fish and shellfish, octopus, giant clams, sea urchins, spiny lobsters and numerous other invertebrates provided a significant portion of the catch. Other methods including fish poisons, spearing and shooting fish with bow and arrow from the reef edge, as well as fish traps, leaf-sweeps, hook and line, nets and weirs, were all commonly practiced in different areas. However, it should be noted that the use of hook and line was apparently not known everywhere in former times.

There were also fisheries for turtles, and in some areas for dugongs, as well as the annual harvesting of the Palalo seaworm. In some areas offshore fisheries also occurred for deepwater snappers, bream and groupers, as well as for flying fish, tuna and tuna-like species, although the latter was mainly in areas of Polynesian influence. All of the various fishing methods were based on a significant corpus of traditional environmental knowledge (TEK) associated with these various resources to enhance the catches realized from their efforts. And all of these methods were embraced by a significant corpus of *kastom* as part of a group's oral histories.

The specialized TEK associated with the fabrication of the various fishing devices like traps, poisons, spears, bows and arrows, hook and line and canoes, etc. often took the fisherman far up into the islands interior where preferred plants were only found to grow. Its method of preparation and fabrication followed specific methodologies to isolate, strengthen, harden or preserve the materials. These methodologies were passed on via a group's oral traditions (with their own cultural-linguistic nuances) and were often encoded in *kastom* stories for the benefit of future generations.

Most of these various fisheries continue to be practiced today to varying degrees, however, the traditional nets and hook and lines have generally been replaced by their modern, introduced counterparts. Other introduced gear such as spearguns and underwater torches have also become increasingly common in the last few years, as has accessibility to outboard powered skiffs, now fairly commonly used for fishing and transport on most islands. The outrigger canoe still dominates in most coastal villages, however, and continues to serve local fishing and transport needs well. The use of dynamite to stun fish has stopped since the end of colonial times when dynamite was more readily accessible.

A number of small scale, village-based commercial fisheries was introduced with European contact, primarily for trochus (*Trochus niloticus*) green snail (*Turbo marmoratus*) and for dried sea cucumbers (Holothuroidea), locally known as beche-de-mer. These fisheries have provided access to early trade items of European manufacture to remote villages, and continue to provide access to cash for rural communities. In some areas they remain very important sources of income for rural areas, particularly trochus.

Johannes (1998a) notes that the tropical small-scale, multi-species fisheries practiced by the rural people today in areas like Vanuatu are prohibitively expensive and notoriously difficult to manage, except for a few high-value benthic species, using western models that require extensive data-collection. Johannes (1998b) suggested that the unrealistic emphasis on quantitative management ideals like optimum or maximum sustainable yields for tropical small-scale, multi-species fisheries could justifiably give way to a new paradigm, what he called 'data-less marine resource management', emphasizing that it is not management in the absence of information. The use of local knowledge (TEK) concerning the resources and

their environment were invaluable to achieve the realistic management objectives of preventing serious over-fishing, ensure reasonably satisfactory allocation of resources and to minimize conflict.

The Vanuatu Fisheries Department emphasizes the fundamental role of traditional management practices in managing nearshore reefs but has also introduced some regulations, for example size limits for some commercialized invertebrates, the protection of turtle nests, prohibition of harvesting berried spiny lobsters, etc. However, the monitoring and enforcement of these regulations remains extremely difficult and virtually cost prohibitive in an archipelago such as Vanuatu. The main value of such regulations is to assist in controlling the export of commercial fisheries products like trochus and green snail and the flow of other resources with regulations such as lobsters and coconut crabs in and from the urban centres.

The main strategy employed today for managing the nearshore reefs is based on the ancient system of Custom Marine Tenure (CMT) and the following of traditional cosmologies or '*kastoms*' which impose additional restrictions on people's behavior towards the harvesting and consumption of marine resources. The fundamental principle underlying CMT is the ability of clans, chiefs and/or communities to claim exclusive rights to fishing areas and to exclude outsiders from these areas. The benefits of their restraint on the fishing grounds may therefore be realized by themselves at a later date and thus provides the motivation to do so in contrast to the 'tragedy of the commons' observed in areas with open access.

Under CMT, chiefs now commonly put certain resources, fishing areas or fishing methods under taboo for varying periods of time. These taboos are locally monitored and enforced by the chief and communities themselves. This system effectively de-centralizes management under custom tenure to the chiefs, community or even clan level, i.e. to those most intimately knowledgeable of the resource and the most motivated to manage well as they, and their descendants, will directly benefit, or suffer, from any management decisions.

The traditional cosmologies or *kastoms* that contribute to the conservation of resources evolved in these islands are driven by a need to protect their finite natural resources, and in so doing, to ensure the survival of the communities that depended on these resources. A prime example of one of these cosmologies is the belief in many areas of Vanuatu that if you eat turtles or turtle eggs and go to the yam garden then your yams' growth will be stunted. Since yams are a primary source of nutrition and are considered to have great *kastom* significance in Vanuatu, the consumption of turtle and turtle eggs during the yam growing season is highly reduced.

As the yam growing season coincides with the time turtles come ashore to lay their eggs, this *kastom* therefore assists to conserve their numbers during their most vulnerable period. This example, and others of cosmological beliefs or *kastoms* that contribute to resource management, will be elaborated on further below.

While many of these *kastoms* are not ostensibly concerned with management, their conservation value is apparent. This would suggest that they evolved in the remote past to fulfil a conservation purpose, thereby contributing to the food security and survival of the island peoples. One could postulate that at some point in the remote past, such customs arose over time under the guidance of the chiefs and high priests, (Melanesian 'Big Men'), that is, those most responsible for *kastom*. This would have been necessary once they had determined that resources were finite and that they had the ability to deplete them. This would not have taken too long once their numbers had grown sufficiently to populate these relatively small tropical islands.

Spriggs (1997:85), who has done considerable archaeological work in Vanuatu, notes "a 'pioneering' pattern of initial settlement followed by serious erosion of the local landscape, abandonment of an area for sometimes many hundreds of years, and a later more conservation-oriented reuse with continuing occupation." Archaeological data for Vanuatu and most other parts of Oceania show a similar trend in marine resource harvesting patterns after initial colonization. It would thus seem reasonable to propose that the introduction of conservation strategies would follow the same pattern with marine resources; once the impact of over-harvesting marine resources was observed then conservation measures would be introduced as a matter of self-preservation. It is after all the same pattern that is now being repeated on continents relatively recently colonized by Europeans and industrialized like North America, Australia and New Zealand - and even globally; that of severe resource depletion followed by the introduction of substantial conservation strategies.

Johannes (2002) argues that it would have been much easier to impact on and deplete many terrestrial-based resources on remote islands due to the occurrence of many species of

flightless birds (due to the absence of large mammalian predators) which were vulnerable to over-exploitation due to being ecologically 'naïve' and also having very small clutch sizes. Additionally, the detrimental environmental and habitat impacts of the early effects of fire and land clearance by man would have introduced significant changes to island environments, including increased sedimentation. Finally, the introduction of the dog, pig and rat would have had a significant impact on island ecology, particularly on the nests and young of ground-nesting bird species.

Johannes also points out that the ability to deplete marine resources would not have been so great. There was no marine equivalent to the introduction of fire and land clearing, nor any known introduction of exotic marine fauna that could adversely affect the marine ecology. Also, the reproductive strategy of most marine fish and invertebrates involves the planktonic dispersal of thousands or millions of eggs and larvae from anywhere from a few days to a month. Larval dispersal is thus widespread and assists to replenish stocks that may be locally over-harvested, provided they are given some protection from further over-harvesting. It is thus reasonable to assume that it would take much longer to extirpate marine fauna than terrestrial, and thus people would have more time to recognize a decline and introduce measures to conserve them.

Indeed, archaeological excavations of Matenkupum, New Ireland, Papua New Guinea, have revealed fish bones and mollusc remains from 32,000 B.P. (before present). Allen et al, (1989) cite this area as being the world's longest continuously exploited reef and lagoon fishery and is the earliest evidence in the world for the human capture of fish. Midden excavations revealed the density of mollusc shells was greatest for the strata between 32,000 and 20,000 BP and that the shells deposited in the earliest strata were mainly large individuals from large species while the uppermost strata had the fewest large species and the smallest mean sizes of species. Gorsden and Robertson (cited in Allen et al) deduce that this indicates low levels of human predation on largely pristine mollusc populations and that some form of rotational harvesting of shellfish was practiced.

In a review of the archaeological record of anthropogenic effects on Pacific coastal fisheries, Dalzell (1998) concludes that mollusc resources were of prime importance for early Pacific island populations and that in some cases long-term exploitation can markedly reduce the average size and diversity of mollusc populations. Also, in some instances a decline in mollusc resources forced early human populations to turn towards other marine resources as well as to rely increasingly on agriculture. He also concluded that the archaeological record for subsistence fin-fisheries of reefs and lagoons indicated no strong evidence to suggest long-term effects on their populations.

However, we know of at least one sessile marine species extirpated in the past from Vanuatu waters, that of the largest of the giant clams (*Tridacna gigas*). We know this because their shells are now commonly found up above today's sea levels where they were transported through coastal uplifting. There has not been a confirmed sighting of a live *T. gigas* for many generations in Vanuatu. It has never been established when the extirpation occurred. One could speculate that they were heavily targeted by earlier residents due to their extremely large size and therefore the large amount of meat available from them for communal feasts. Just north of Vanuatu, however, in the Solomon Islands *T. gigas* can still be found.

One could hypothesize that these rules for conserving the resources necessary for the survival of ancient communities were thus initiated, encoded and enshrined into *kastom*, to be followed by the people as part of their cosmology. Melanesian society is characterized by numerous secret and Big Man societies that conceals the sacred knowledge associated with these elite groups from the uninitiated. Only through progressing through the rigorous prescribed stages of initiation is this knowledge slowly revealed to those deemed worthy. There is also an extensive use of metaphor and symbolism, understandable at its deepest level only by those initiated in the rich oral traditions associated with these societies and recording the island's histories.

Knowledge of the islands' histories is power, because it records who has primary rights to the land and sea and their resources. It is thus primarily held by the priestly and chieftain classes. The integration and obfuscation of resource management practices into the rules of *kastom* initiated by the ancients, to be then followed by rote by the general public is in keeping with this fundamental characteristic of Melanesian culture. This is why, if you ask an islander today, they follow certain rules associated with the fabrication of, for example, a fish trap, he will often simply respond that it is our custom to do so.

## A Cosmology Evolved to Sustain Resources and Communities

### *The Lapita People*

The first people known to have populated the islands of Vanuatu are now known as the Lapita people. They originated from somewhere in SE Asia (Kirch 1997). According to archaeological evidence, the earliest appearance of this people in Vanuatu was approximately 3,000 years ago (Spriggs 1997). By 2,800 years ago, the Lapita people had progressed through Vanuatu to New Caledonia, over to Fiji and on to Tonga and Samoa (Kirch 1997). This was a rather explosive expansion across a large area of the Pacific within a very short time period, when one considers that there were people who had progressed down through the large islands of the Solomon Islands as far south as San Christobal some 28,000 years ago. These much earlier coastal peoples have come to be known as Melanesians.

It should be noted that from mainland southeast Asia down to the southern Solomons there is a "voyaging corridor"; one can always see another island - but not when looking south from the southern Solomons. The success of the Lapita people in colonizing these pristine islands beyond the Solomons is attributed to their development of a superior seafaring tradition to that which had been previously known in this region, including more seaworthy canoes and navigation techniques (Irwin 1992). The cultural complexity of the Lapita people also included a well-developed repertoire of fish hooks, including trolling lures, and evidence for the use of a wide array of techniques including spearing, poisoning and netting fish as well as relying on the extensive shellfish beds. (Kirch 1997).

This rapid expansion of the Lapita people has been likened to a freight train that passed through the islands. It seems that these first colonists were not so interested in settling, but moving on once they had exhausted the large and often ecologically 'naïve' turtles, fish and land birds (many of which were flightless). Of course, without the initial benefit of crops (although these early settlers brought with them the plants and animals of their traditional economy), the Lapita people would have been almost entirely dependant initially on marine resources, especially the pristine shellfish beds and what could be hunted and gathered from the forests, primarily birds and fruit bats. There were also the domestic pigs and chickens that these early colonists brought with them. However, some 'boxcars' of this Lapita freight train remained and settled permanently in some areas.

The archaeological data available for these Remote Oceanic islands indicate a repeating pattern of marine (particularly turtle and shellfish) and avian resource extraction upon first contact, and in some cases numerous avian species extirpations and extinctions associated with these first colonists (Spriggs 1997; Kirch 1997). Although the archaeological data for Vanuatu remain relatively sparse, Bedford (2000:243) indicates there are "hints of a 'blitzkrieg-like' scenario on initial arrival" which will require further excavations for confirmation. He confirms the heavy exploitation of turtles and fruit bats and the extinction of some birds and a small, endemic land-based crocodile during the initial settlement phase. He also reports the dramatic reduction in size of some shellfish at some sites and an indication that some species may have been locally extirpated from particular areas on different islands. He also notes that "inshore and reef species of fish were targeted from initial arrival and continued to be so throughout the sequence, with no evidence for any change in preference or procurement strategies."

Arriving in what would have been a pristine 'paradise', these early arrivals tended towards a 'pillage and pull-out' strategy, in many cases needing only to move on to the next pristine bay around the corner to repeat the process. It appears that if the Lapita people had any sort of conservation ethic as part of their customs, it was apparently suspended while surrounded by such plentiful resources. This seems to be a common theme when resources appear to be infinite and seemingly inexhaustible. Europeans did the same thing when they viewed the endless expanse of rainforests and salmon on the coast of western Canada. Now, some 200 years later, both of these resources are severely threatened.

It was a different story, however, for the 'boxcars' whose people remained. The people who chose to remain in the islands of Vanuatu (and including the numerous subsequent waves of colonists from the north that arrived once the route was opened) would have been faced with the challenge of equilibrating with the finite space and delicate ecology of small tropical islands. One can imagine how the survival of these communities would depend upon the later inhabitants reaching equilibrium with their environment – or face the demise of their own people through a lack of resources to maintain a population. Indeed, the story of Rapa Nui (Easter Island) indicates that some Pacific peoples pushed their island environment to the brink of destruction which in turn led to the collapse of the islands culture and population. However, that this happened on one isolated island does not imply that the entire Pacific

lacked a system of self-preservation, including a system of marine resource management.

One of the efforts to maintain equilibrium would have been the establishment and protection of a territory which a clan or group of clans would have control over. In Vanuatu, and throughout Melanesia, these territories included the nearshore reefs as a natural extension to the land. These territories provided the necessary resources for people – access to marine resources and gardening areas, fruits and nuts, wild birds, pigs and fruit bats. Also to natural materials for house and canoe construction, for fabricating fishing gear, weaving materials for mats and baskets, traditional medicines and the myriad of other materials used in island technology that are utilized to help sustain life on the islands. The management of these resources, once the population pressure became sufficient to threaten them, would be a natural progression for any group of people intent on survival.

Through thousands of years of observation, experimentation and close association with their environment, a body of traditional ecological knowledge (TEK) became part of a clan's heritage. This knowledge was continually built upon, refined, added to and modified through subsequent generations. Today we still find in Vanuatu a rich corpus of TEK associated with both land and sea.

These systems of CMT and TEK both served to enhance a clan's chances of survival in an otherwise uncertain environment where hurricanes, volcanoes, tsunamis, earthquakes, floods, droughts and warfare were a part of the annual cycle and human drama of these islands. These ancient systems of land and reef tenure, as well as environmental knowledge, continue to assist in the management and resource use and ultimately to enhance survival for people who still live a predominantly traditional lifestyle on the islands of Vanuatu today.

## Ancient Traditional Marine Management Measures in Vanuatu – Ritualized and Sanctified

### *Background*

A fundamental consideration in examining the ways in which marine resources were managed in pre-contact Vanuatu is to consider the context in which these measures, as well as the harvesting methods, were practiced. That is, within the framework of the traditional cosmology or belief system practiced in ancient times. Life in those days had an inherent sanctity that was maintained through a high degree of ritualization and based on the premise held true still today in Vanuatu that all things have a spirit. For most of us today it is difficult to imagine the degree of sanctity and ritualization of earlier times as well as the spiritual connection people felt with their environs. However, we must try to imagine if we are to approach an understanding of how things may have worked in ancient times.

For one thing, marine resource management was not an isolated body of knowledge neatly compartmentalized into one clearly definable element of early island cultures. Instead the rules of custom which contributed to the conservation of resources touched all facets of life (See also Purnomo, this vol) and formed a multi-dimensional web of support for resource management. This point will be elaborated upon further below. Also, much of the harvesting of fin-fish, particularly by people not directly living on the coast, was done before not by independent individuals looking for dinner, as is often the case today, but was more often done communally at seasonally prescribed times of the year and through the use of '*kastom*'. That is, it was often highly ritualized and involved the "spirit of *kastom*" or the intervention of the spirit world.

The communal nature of these fin-fisheries is evident in the main methods used to harvest fin-fish like coconut leaf-sweeps, fish drives and the use of fishing weirs, which at least today are owned by clans, not individuals. The harvesting of shellfish beds and other reef gleaning activities were more likely to be practiced on a regular basis, and would include small amounts of fish, but would still be controlled by local cosmological and seasonal restrictions (see below).

The spirits, including ancestral spirits, were omnipresent and could be used to people's advantage if done correctly. There were shamans capable of enacting the correct rituals to ensure a bountiful communal harvest. A taboo would be placed on the area to be fished for up to a year or so, which prohibited anyone from swimming or even walking by on the beach. This would serve to decrease the wariness of fish from entering that area as well as allowing for an increase in fish size. The timing of the communal harvest would then be divined by the shaman, who studied the tides. The villagers would facilitate the catch with a communal harvesting method such as a leaf sweep (a long net made from coconut fronds and used as a barrier) or a similar method using people with poles acting as a human barrier (fish drive).

These fish would then be shared amongst all clan members and perhaps traded to inland villages in return for resources from the island's interior. These practices would only be done on

certain occasions according to the local *kastoms*, which appear to be timed to coincide with seasonal abundance or enhanced access of the target species, such as the season of extremely low tides. (see section below on 'Seasonal Considerations in MRM').

### *Traditional Marine Resource Management Measures: Taboos and Kastom Beliefs*

There was formerly a number of different traditional marine resource management measures (MRM) practiced in Vanuatu. These practices varied between the numerous different cultural groups found throughout the islands, and reflect this cultural diversity. Some of these practices are still found today; others have survived only through oral history. Others have no doubt been lost.

Some of the traditional MRM measures resulted in fishing area closures, as outlined below. Other cosmological beliefs that manifested as rules associated with *kastom* contributed to the management of marine resources in less obvious ways. For example, the numerous rules associated with the fabrication and deployment of traditional fishing gear and techniques often contribute to the management of marine resources.

The most widely known example of this is the taboo against engaging in fishing after indulging in sex. One is given a choice - you may indulge, but if you do, it is taboo to go fishing for the next day or two, the actual duration varying with the area. Given that a certain proportion of the village population will indulge on any one night, it is easy to see how this taboo would contribute to reducing fishing pressure on the reefs the following day or two. It is easy to see that these rules also had something to do with birth control, in that devoted fishermen would not make love to their wives so as to be able to go out fishing the following day. Sexual abstinence is also required for those involved in the fabrication of fishing traps, weirs, canoes and most other fishing devices. This would further limit fishing pressure given that not all men would choose abstinence.

Other examples of cosmological beliefs or *kastoms* that effectively limited fishing pressure were that when you went on a fishing trip, you cannot be seen departing by others, or at least they must not be aware that you are joining a fishing expedition. Once seen by others as you prepare to depart for fishing brings nothing but 'bad luck' and so the trip is aborted. Another example is that any man with a pregnant wife is automatically excluded from any fishing activities. Both of these taboos relate to the belief in the negative intervention of the spirit world on fishing activity if these taboos are not followed.

It is also taboo to eat certain foods and to go to certain places when one is constructing fishing devices. If a fisherman is unable to respect these taboos, he must excuse himself from the fishing group, as he will ruin the fishing for all concerned. In most areas, there are ways to find out who has not followed the rules. This will put the offender to great shame within his clan, and so is to be avoided.

As noted above, in some areas it was taboo to eat turtle or turtle eggs if you planned to go to your yam garden. In some areas this was also the case with octopus, lobsters, certain fish and other foods including certain fruits. In some areas, it was taboo to go to the garden if your leg had so much as made contact with the sea. Thus, if there was work to be done in the garden (and there often was), one could not be involved in fishing, or in the consumption of certain seafood. Given the high priority to the production of food through agriculture in Vanuatu, it is apparent that these numerous rules of *kastom* also served to reduce fishing pressure.

During the season of preparing the new yam gardens there is much labour involved in planting and caring for the yams, necessitating frequent trips to the garden. Also, the production of yams was a central aspect of food production and in the *kastom* of most areas of Vanuatu and was thus treated as a serious endeavor. There were also numerous other taboos in addition to drawing upon the power of the spirit world to be followed to ensure a good crop.

Many other *kastoms* resulted in the direct conservation of marine, and other, resources. An example of this is the tabooing of a favorite food of a deceased clan member such that the family shows respect to the memory of the deceased by not eating that type of food for a specified time. For example a certain type of fish, spiny lobsters, octopus or a type of shellfish or a fruit may be tabooed in honor of a deceased clan member for a year or more. The time period is generally commensurate with the sorrow of the loss. This would take fishing pressure off that resource within the clan's area for that time period.

Another example is the practice of people not eating their ancestral or family totems for essentially spiritual reasons. This may be a certain type of fish, turtles, giant clams, or any other number of totems used. Again, this significantly reduces the fishing pressure on a given resource within a given area.

In fact, there were numerous rules of custom governing much of the activities and behavior not only of fishermen, but of all clan members engaged in any of the traditional arts of life from weaving baskets or making ceremonial carvings or headdresses to the preparation of traditional medicines. These numerous and various rules of *kastom*, which permeated all aspects of island life, combine to form a multi-dimensional lattice or web that provides a blueprint to life on the islands - including the management of resources - as well as all other aspects of life. These blueprints, encoded and enshrined in *kastom*, were often derived from the ancient gods and cultural heroes and thereafter sanctioned by the ancestors as 'The Way', and passed on to the next generation through the oral traditions and *kastoms* of a cultural group.

In all areas of Vanuatu there were also numerous secretly guarded customs associated with using spiritual powers, mediated through shamans, to ensure an ample supply of all resources. This was also a critical part of any taboo used to close an area to fishing, to use the power of the spirit world to increase resources. Reef taboos were never just set and left 'static', but were always accompanied by ancient rituals sometimes recited in languages long lost that drew upon the 'spirit of *kastom*' to proactively increase the resources.

These activities reflect a fundamental belief held by ni-Vanuatu in the spiritual connections between themselves and the rest of the natural world. This belief extends to the ability of people, through the power of *kastom,* to influence the natural world around them. This was frequently employed in all aspects of life, from agrarian and fishing practices to the cutting of a canoe, or in the preparation of natural medicines. These practices served to acknowledge, support and harmonize with the spirits and sanctity of the island world.

Examples of some of the cultural practices found throughout different areas of Vanuatu that resulted in a taboo being placed on a reef that allowed reef resources to rest and recover for varying lengths of time are outlined below. In most cases, taboo leaves specific to the cultural group are erected to indicate clearly the area covered by the taboo.

*Death of a "Big Man"*

In some areas, the death of a Big Man (or High Priest) meant that his memory would be honoured by the putting of taboo on his area of reef. This total closure to the harvesting of reef resources may last for many years, depending on the degree of respect held for the Big Man. This taboo is associated with the enactment of many rituals including the killing of pig(s), dancing, kava drinking and communal feasting. Upon the opening of the reef, a final communal feast is held to honour the deceased, using the fish and other marine resources harvested from the closed area.

*Death of any Clan Member*

In other areas, the death of any individual of the clan - man, woman or child - may mean that their clan's area of reef will be put under taboo, or closed to all harvesting for a year or so – this taboo is also associated with customary practices following ritualistic protocols.

Figure 2: A taboo indicator showing the fishing area closed as a memorial to a deceased clan member on Epi Island.

*Grade Taking of a "Big Man"*

In some areas, the practice of grade taking as part of ascending a social and spiritual hierarchy is accompanied by taboo being put on terrestrial, freshwater or reef resources for anywhere from 1-4 years. This is also associated with very strong custom practices like multiple pig killings, kava drinking, dances, songs, feasting and other rituals.

*Yam Season*

In many areas, the reef is annually closed to harvesting of all or some resources during the summer months at around the time of yam planting, and opened for New Yam Celebrations

approximately 6 months later. See discussion below on 'Seasonal Considerations in MRM'.

*Circumcision*
Circumcision rituals were also associated with putting taboo on an area of the sea; this was generally for a short duration, as short as 1 month.

*Taboo Areas*
In virtually every area of Vanuatu there were formerly numerous coastal taboo places of spiritual significance for which people had the greatest reverence and would respectfully avoid the area and not go fishing or collecting there. These taboo places were also found in the bush and in freshwater areas and were often areas associated with high biodiversity.

*"To Allow Resources to Regenerate"*
In some areas it is said that in the old days, there were taboos placed on the reefs to allow some specific species, such as a preferred type of shellfish or octopus to recover. However, these taboos were never 'static', but were accompanied by the use of ritual and *kastom* to draw upon the spirit world to ensure the resources would increase.

*In Preparation for Specific Feasts or Other Customs*
In many areas there were specific feasts or other customs arising, such as the harvest and exchange of fish or other marine resources to inland villages, which were preceded by a taboo being placed on the reef. During this time, the shaman would perform elaborate rituals invoking the power of the spirit world to make the fish plentiful and thus ensure a good catch.

The common theme to all of these closures was that they were highly ritualized and intertwined with the spirit world. It was this spiritual context that primarily ensured compliance by the people with these taboos. Punishment for breaking these taboos included retribution from the spirit world as well as the Chief imposing fines of pigs, kava, woven mats and other culturally significant articles or even death as an additional deterrent.

It can be seen from the number of *kastom* related area closures listed above that there would have been quite a few areas closed at any one time. When travelling through north Pentecost in central Vanuatu a few years ago, the author was informed of a total of eleven marine closures associated with grade taking ceremonies. These closures formed a mosaic of spatial-temporal refugia across the top end of this island that protected various types of marine habitats.

Given that there were always people taking new grades this mosaic of refugia and thus their management value would continually be perpetuated, varying in space and time. The same would be true for all other areas of Vanuatu that practiced the other culturally related taboos given above. Perhaps this was the traditional counterpart methodology to achieve the modern scientific concept of optimum sustainable yield through controlled harvesting rates in that through this system all areas would be fished but also be periodically closed in order to recover.

## *Seasonal Considerations in Marine Resource Management*

In most areas of Vanuatu, much of the nearshore marine resources harvested came from reef gleaning or other fishing activities on low tides. Therefore an important environmental constraint regarding the harvesting of intertidal resources is the seasonal variation of the tides. The tides in Vanuatu occur twice daily (i.e. are semi-diurnal - two lows and two highs) while the height difference between the two highs and lows is markedly different. The overall maximum range of the tides is roughly 1.5-m.

The tides in Vanuatu reach their annual lows during the southern winter months and are at their highest during the summer months. The spring low tides of the winter months, peaking in June/July, are generally down to zero in height, or are negative tides, and this low occurs at midday. The tides never get as low as they do at the spring tides of the winter months at any other time of the year, either by day or night.

The reefs are therefore exposed optimally for gleaning purposes during daylight hours in the winter months. Thus, the environmentally determined season for reef gleaning is during the winter months, starting in April/May and finishing in September. These annual lows are also the optimal time for employing communal fish harvesting methods using the traditional leaf sweep, fish drives and use of fish poisons as these techniques also depend upon good low tides.

These annual winter daytime tidal lows are also coincident with the months of the ripening and harvest of Vanuatu's most esteemed root crop, the yams. The ripening of the first yams are celebrated annually in New Yam Ceremonies, (which are analogous to the European New Year celebrations) and are still a significant part of the annual cycle of island customs. The annual New Yam Ceremonies serves to ritually open the yams to harvesting, which will then continue throughout the winter months. A

preferred method to prepare the yams for these communal Celebrations is to make traditional puddings by grating the yams and baking them in the earth oven, often sweetening them with coconut crème. Included in these puddings are delicacies such as octopus, giant clams and other shellfish, lobster or fish, depending on the area, gleaned from the reefs with the annual return of the low tides.

The coincident timing of the lowest annual tides and the maturation of the yams led many areas of Vanuatu to have the custom of closing their reefs, or at least most of its resources, at the time of planting yams (September/October) until the harvesting of the new yams in April or so. The actual time of closure varies from area to area from clearing the yam gardens in preparation for planting, to planting time, to when the planted yam first shoots. This annual half-year closure is a management strategy to ensure a good harvest from the reefs for the New Yam Celebrations and for use in preparing yam puddings during the subsequent months of harvesting later maturing yams through until September.

This annual half-year closure of the nearshore reefs also coincides with the hot summer months, the time at which it is believed most of the fish and invertebrates targeted for subsistence from the reefs are at their spawning peaks. This annual closure thus has obvious and highly significant management value for the marine resources.

Some areas would then turn to the wild birds and fruit bats found on the islands as a source of meat during these hot months when the reef was closed. Also, during the hot season while the nearshore reefs were inaccessible for reef gleaning, flying fish would come inshore and thereby become more accessible. There are a number of methods used to catch these pelagic fish, from hooks and gorges in the Banks Islands down through the islands of Pentecost, Ambae, Maewo to traditional lights (burning coconut fronds) and small dip nets on the southern island of Futuna. Some of the southern islands would also target the other pelagic fish, the tunas that followed the flying fish inshore during the hot season. These pelagic fish offered an alternative source of fish protein during this time when much of the nearshore reef was closed.

On other islands there was no blanket taboo, *per se*, on the reefs during the hot season, but as the tides were not low enough for effective reef gleaning, very little if any was done, thus taking the pressure off the reefs during this season. Besides, this was the season to focus on the all-important production of yams and other garden staples. The hot season is also the rainy season and therefore the time when everything in these tropical islands, including garden crops, grows prolifically. The hot rainy months when the tides weren't very low were thus the time to focus on food production from the gardens.

An important factor which also contributes to this seasonal management strategy is the aforementioned taboo to eat if you intend to go to the yam garden, including certain types of fish, octopus, spiny lobster, turtle and turtle eggs.

Another consideration in this annual closure is that many areas of Vanuatu note an increase in ciguatera reef fish poisoning (caused by a proliferation of the epiphytic dinoflagellate *Gambierdiscus toxicus*) during the hot summer months. Serious cases of fish poisoning are highly debilitating, and as the toxin accumulates in an individual over their lifetime, people become more and more sensitive to it. This consideration may well be part of the reason it was prudent to avoid eating fish from the nearshore reefs during the hot summer months and may have contributed to the initiation of an annual taboo on nearshore reefs during this time.

Also, the occasional unexplained occurrence of ciguatoxicity in reef fish not normally affected remains enigmatic in many areas. Outbreaks may occasionally occur and affect not only the usual species known to be affected (generally the larger carnivores of particular species) but smaller herbivores as well. Some areas have had inexplicable ciguatoxicity affecting almost all reef fish and lasting for many years. This situation ultimately results in a forced closure or a ‘natural taboo’ on harvesting reef fish in the area until the ciguatera event is known to have passed. It thus imposes a severe restriction on fishing pressure during these events resulting in the conservation of fish resources.

In some islands, for example on Tanna, it is said today that people were 'vegetarians' and that they only ate meat ritually on special occasions. They consider that to eat too much meat regularly is unhealthy and results in a shorter life. This sounds much like the modern medical advice that we hear today. Deacon (1934:16), an early ethnographer comments on what he observed on Malekula, “The principal occupation of the people is gardening, for their diet is predominantly a vegetarian one, yams being the staple food-stuff. In the coastal villages, however, fish are caught and shell-fish and crabs are collected, while everywhere wild pig is hunted; but the products of these

activities are regarded as tasty extras to the usual vegetable dish, never as a basis of a meal."

## Factors Affecting Compliance with Traditional Taboos.

### *Ritualized Sanctification of Traditional Closures*

One of the striking features of these ancient *kastom* taboos is that there is a high level of respect for them. The main reason for this level of respect is the strong cultural context of these taboos including the deeply rooted belief that the breaking of a taboo will result in the supernatural intervention of the omniscient ancestral spirits resulting in the demise of the transgressor, or of someone close to them. It is as if the ancestors remain in spirit form to ensure that the '*kastoms*', (and therefore the conservation of resources) are maintained by the following generation; the ancestors remain as a sort of conscience for subsequent generations. These beliefs are still part of the island consciousness in many areas of Vanuatu, despite over 100 years of Christian influence.

While the traditional cosmologies continue to shape much of Vanuatu's cultural landscape, there has been some erosion of many of these *kastom* beliefs and practices in most areas. This has consequently had a detrimental effect on the management of resources. Comments by Elkington (1907:181) who traveled through Vanuatu around the turn of the last century illustrates this process underway at that time regarding northeast Malekula "Turtle fishing is not gone in for much, as the natives are superstitious about the turtle, and civilization has not yet been able to dispel their fears. One of the chief ones is that the eggs are sacred and may not be eaten. But one by one their superstitions are going, for they see how the white man prospers in spite of scorning all their sacred ideas, and that now and then makes them courageous enough to break through the barrier and when once a superstition has been found untrue, they are not slow in testing another, if by challenging it they can see any gain for themselves." This process of the gradual erosion of traditional beliefs is still underway today in Vanuatu but is far from complete. The ocean swell of *kastom* still runs deep in most areas of Vanuatu.

The initiation of these ancient closures or taboos are accompanied by elaborate custom rituals, including pig killings, kava drinking, dancing to traditional drum rhythms and songs, and the erection of taboo leaves, all of which have a deeply rooted and heavy cultural significance for island people. These rituals all serve to invoke the power and the blessing of the ancestral spirits in their participation in these taboos. These taboos are thus in the realm of the sacred, as they involve the power of the spirit world.

In fact, the word 'taboo' is a vernacular term from Oceania and is translated locally into English as 'sacred' or 'holy'. (The OED defines Sacred as 'consecrated or held dear to a deity….made holy by religious association, hallowed…sacrosanct'.) These consecrations, through the enactment of elaborate rituals and invocation of the power of the ancestral spirits to initiate and oversee these taboos effectively consecrate the taboo, (make it holy, sacrosanct)., and are no doubt responsible for the high level of compliance found for these taboos still today.

### *Historical Impacts Which Affect Traditional Management Practices*

In many areas, some of the ancient customs associated with the initiation of marine taboos have been lost or severely eroded, primarily due to the impacts of European contact. There are a number of historical factors which have contributed to this erosion since European contact and are outlined briefly below. Although they may be broken down into separate categories many of them were occurring simultaneously and thus were all closely interrelated with potentially synergistic effects in undermining ancient traditional ways.

### *Massive Depopulation*

Massive depopulation of Vanuatu occurred as a direct result of the arrival of Europeans. Coastal people were generally the first to encounter the Europeans, (the whalers and Sandalwooders who arrived by ships starting in the early 1800's) and thus were the first to be exposed to the new diseases (smallpox, diptheria, whooping cough, influenza) that they had no immunity to. The 'Blackbirders' (labor traders) also targeted coastal areas starting in the 1860's to recruit labor for the cane fields of Queensland and other places like Fiji, Hawai'i and New Caledonia and thus contributed further to depopulation.

Those that returned from Queensland were often Christianized and spoke Pidgin or a bit of English. By the 1920's, the population of Vanuatu had dropped from an estimated pre-contact figure ranging from 500,000 to 1,000,000 inhabitants to only 40,000 due to the combined effects of European contact. This massive depopulation had an enormous cultural impact due to the loss of entire settlements (and cultural groups) in many areas as well as well as having a severe impact on the normal process of transmission of *kastom* knowledge between generations.

This dramatic drop in population starting in the early 1800's would have consequently resulted in a significant overall decrease in pressure on resources, including marine. The last two to three generations would have known relative times of plenty due to this prolonged reduced population pressure on resources. The old people of today all speak of the remarkable abundance of marine life in their youth, and the ease with which one could fill a canoe with fish and other seafood including turtles, giant clams and other shellfish. It is often under their guidance in their communities today that is highlighting the need for tighter management controls (taboos) so that future generations will also know what rich and diverse reefs are like. It is this older generation that has seen the abundance of the past and sparseness that is the future, if steps are not taken now.

### *Missionization and Christianity*

Most of the early Christian missionaries, particularly the Presbyterians were highly intolerant of *kastom* and banned kava, numerous *kastom* ceremonies, dancing, and all other activities relating to *kastom* (Paton, 1911*)*. The *kastom* use of the spirit world, which is a fundamental part of the taboo system as well as everything else in ancient times was labeled as the 'work of the devil' and outlawed by these early evangelists. Many forms of cultural expression were thus diminished and eroded in areas of strong Presbyterian influence. Anglican and Catholic, the other two main early denominations were often more tolerant of many traditional practices and the level of erosion was reduced in areas dominated by them. However, as noted previously, many of the underlying cosmological beliefs associated with *kastom* were not entirely eradicated, but their outward cultural expression often was. After all, the missionaries may have had great influence over what one did, but not over what one thought.

Traditional grade taking rituals, for example, a practice formerly central to the cosmology of much of northern-central and northern Vanuatu has been lost in many areas, with the exception of the islands of Ambrym, Pentecost, Ambae, Maewo and parts of Malekula where there has been an active revitalization of these practices since Independence in 1980. Big Men, who acted as High Priests in traditional society were sanctified and achieved their high status through very elaborate pig killing grade taking ceremonies, and as outlined above, the tabooing of marine (or freshwater or terrestrial) areas was in some areas a part of these rituals.

Also, it was these High Priests who had the right in most areas (in that they were sanctified) to set the taboos for all of the resources, including freshwater and terrestrial. With the loss of this Priestly class system and of grade taking ceremonies in many areas (which resulted in taboos being initiated in some areas) there was thus a void created in the setting of taboo and therefore the management of resources (as well as in numerous other aspects of traditional life).

Today in some areas, as observed on Gaua in the Banks Islands, the actual practice of raising tusked boars has dwindled to the point where the lack of pigs is the limiting factor in enacting the traditional setting of the reef taboos, as they were often an integral part of the initiation ceremony and/or the removal of the taboo. This lack of available pigs would indicate the general erosion of traditional practices, as the raising of tusked boars was a highly significant cultural practice for most areas of northern-central and northern Vanuatu in the past. It also means that the ancient traditional rituals, for example those required to properly initiate or remove, according to the rules of *kastom,* a marine taboo can no longer be performed.

### *Massive Migration*

The introduced and mysterious diseases introduced by Europeans that rapidly decimated the population were interpreted by the people in context of the local cosmologies and thus believed to be the work of sorcery. The remnant populations of villages were then induced to consolidate to coastal missions where they were promised they would be safe from further sorcery and would have access to European medicines to combat disease.

Consequently, almost all of the coastal villages found today in Vanuatu are composites of remnant populations of numerous different *nasaras* or clans, which formerly lived in widely dispersed settlements consisting of extended families on their own ancestral lands. By formerly maintaining such a decentralized pattern of settlement, clans lived close to optimum gardening areas within their traditional territories, where they also had exclusive access to various terrestrial and freshwater resources.

This pattern of settlement would have significantly dispersed the pressure on terrestrial, freshwater and marine resources over the entire area of an island. However, by the majority of the island's residents of the interior areas migrating to the coast, the demand on resources was, and remains, significantly concentrated in relatively small coastal areas. These modern, translocated, composite villages now often share common access to waters considered communal in the immediate vicinity of the village while the lands

and reefs surrounding the village are under the tenure of the *kastom* owners. The interior of most of the islands, the exception being Tanna, remains virtually uninhabited today. In some areas today, people have begun moving back to their ancestral homelands in the interior of the islands to avoid this coastal crowding and the attendant competition for good gardening areas and land disputes.

These changes in demographics also had serious impacts on the *kastoms* of these translocated villages. The numerous *nasara* which were grouped together as a result of this migration did not always share the same dialects, languages, customs or leaders. The homogenization of these composite villages often results today in a lack of cooperation and conflicts involving land and resource access as well as over leadership within these communities that in turn affect the respect for taboos and the management of resources.

### *Changes to chiefly lineages*

In many areas, the chiefs of an area were replaced with a new chief appointed by the early missionaries. As the early missionaries often sought to undermine and destroy the traditional chiefly and priestly classes, (as it was often them whom opposed the missionaries and strove to uphold *kastom*), they found it expedient to replace them with one more to their liking. They would typically choose someone who had embraced the newly introduced Church as the new chief, as he was someone they wished to elevate in status. Those whom knew a bit of Pidgin or English and had adopted some Christian ways such as those returning from the Queensland sugarcane fields were sometimes chosen.

This new chiefly system often became hereditary and is a source of conflict in numerous villages today, where the new chiefly line appointed by early missionaries is being disputed by the original chiefly lineage. These internal community disputes often result in the taboos set by them today not being well respected (Hickey and Johannes, 2002).

### *Colonial Land Alienation*

Starting in the 1870's numerous copra traders and planters, both English (from Australia) and French, (often from the nearby French possession of New Caledonia) arrived to purchase land, often for a couple of axes, some stick tobacco and some calico (cotton cloth). The individual who put an X beside his name on the contract may have had some *kastom* rights to the land in question but it is not likely they would have understood a European's concept of land alienation. Some French interests including the Government of France bought up vast tracts of land trying to tip France's claim to the island group in their favor. By 1905, this group had highly questionable claims to over 55 % of the islands (Van Trease 1984). The subsequent sub-division and sale of these lands to new French settlers led to numerous land disputes with these opportunistic interlopers, with more than a few of these settlers being killed.

In part due to the increase in violence relating to land disputes, also on the rise between European settlers, a Convention was signed in 1906 by the two colonial powers to jointly administer the islands. In 1914, this was amended to establish a Joint Court, also called the Condominium, primarily to deal with the land disputes including the registration of European land claims. This system of registration favored and legitimized the often dubious claims of the Europeans (Von Trease, 1984).

As these settlers favored the flat coastal plains for their plantations in addition to safe harbors for exporting their copra, cacao and coffee it was primarily the flat coastal areas which were initially alienated. These areas were often the areas of greatest fringing reef development, as opposed to the steep volcanic slopes that supported very limited nearshore reef development. Although they did not legally have control over the reefs (they in fact had dubious legal claims over the land) many of them apparently asserted their authority over them effectively alienating many reef areas. This large-scale alienation of land and extensive clearing for coconut plantations (for the production of copra) would have also had a significant impact on the reefs and freshwater systems themselves through erosion and sedimentation as well as on the traditional use patterns and *kastoms* associated with the management of them.

Many of these plantations also ran their own small ships around the islands to recruit labor for their plantations, as labor from other islands could not so easily return to their own land when they tired of plantation work. This helped the plantation owners overcome local labor shortages for labor intensive copra production. This presence of migrant workers in turn created additional problems as these people had different *kastoms*, yet would also look toward the reefs for subsistence needs. A number of the larger islands in Vanuatu today still have large remnant populations of the descendants of plantation workers from other islands from this period. These 'migrant populations' are sometimes a continuing source of conflict regarding the access and management of reefs

and other resources on islands, lands and reefs not their own.

It was these ongoing and escalating conflicts over land, particularly when the European colonists eventually began to clear the islands interiors for plantations that led to the Independence of the New Hebrides and the creation of Vanuatu, which translates as "Our Land". The land and reefs were at that time returned to the indigenous custom owners and their descendants as well as provisions made for them to lease their land to non-custom owners (other ni-Vanuatu or foreigners) for development or other purposes. There is to this day no freehold title of land in Vanuatu.

The western concept of an individual owning land thus remains in the legal framework of the Republic as the legally binding leasing of land requires **a** 'custom owner' to sign over the land to whoever is leasing it. This western notion of individual ownership conflicts with the customary practice of clan custodianship of a territory and its resources with an inherent responsabilty to look after it for ones descendants. This results in considerable conflict and division amongst families within a clan as to who has the right to lease the land and thereby receive the economic benefits. As leases are normally from 50 to 75 years, these leases may also affect subsequent unborn generations.

## Contemporary Transformations of the Ancient Marine Management & Taboos

The contemporary transformation in historical times of the management of marine (and other) resources including the use of taboos has been an ongoing process of adaptation since the historical impacts documented above began and continues into this more recent period of the Republic of Vanuatu's nation-building. It is truly a testament to the adaptability, resilience and capacity of this ancient system of resource management to have continually been transformed throughout the process of upheaval associated with the arrival of Europeans and on into today's pressures of development and even globalization.

These transformations emerged in response to massive demographic shifts which occurred while many aspects of traditional cosmologies were being eroded and displaced by Christian beliefs and traditional economies of barter and exchange were gradually displaced with the cash economy ushered in by the arrival of the Europeans. Consequently, these taboos have gradually become increasingly associated with the quest to earn money from the commercial harvest of reef resources. This represents a marked shift from the original predominantly cultural context use to manage reefs, a context that was found to significantly enhance compliance.

Some of the earliest transformations of taboos were associated with the management of the islands first commercially exported commodities of dried sea cucumber (beche-de-mer), trochus and green snail when European, American and Asian traders entered the region and initiated the era of commercial fishing for overseas export. Beche-de-mer, never a popular food item in Vanuatu or other parts of the Pacific was purchased in the region for export since the early 1800's. Trochus on the other hand, has been targeted for subsistence purposes since the Lapita people's arrival some 3000 years ago and at some later point became popular as well for making decorative armbands with cultural significance. It began to be targeted commercially for export sometime in the early 1900's. Today, it is the single most commercially significant reef mollusc sold in Vanuatu by villages for export; it now sells for around 300 vt/kg (about CDN 4.50/kg). Green snail, a larger marine gastropod used for inlay in Asia, until recently fetched 2000 vt/kg (about CDN 30.00/kg); one good-sized green snail can weigh a kilogram. With the recent Asian economic decline this price has dropped off significantly as has its demand.

The motivation to manage these resources well in order to generate revenue in the rural areas is thus quite high. It is not quite clear how these resources were managed in the late 1800's, early 1900's, but older men in areas where these resources have been fished for many generations relate how taboos were used to help them recover after continuous harvesting left the stocks depleted. Today these taboos for commercial purposes are no longer accompanied by any pig killings or other rituals of cultural significance, except in some areas the posting of a taboo leaf indicator, typically a *namele* (a cycad frond) used in the central and northern islands to indicate a taboo. In some areas the *namele* will be placed with a trochus shell on it to indicate that it is trochus being banned. In many areas today the use of the *namele* is no longer used for trochus closures but the reef is left unmarked after a verbal declaration.

In areas of Vanuatu where the ancient traditional taboos are still practiced today, people state that they have observed their conservation value over time. That is, that when an area was closed to harvesting during a traditional taboo, resources, including trochus, beche-de-mer and green snail were later observed to become larger and more abundant,

as well as fin-fish being more easily caught as they were "less wild". That is, that the fish tend to lose their wariness of fishermen during periods when the reef is under taboo and therefore not being fished. When the fishermen return, the fish are much more easily caught.

For island people intimately associated with their environment, it is not too surprising that the effect of these taboos would be clearly observed and recognizable. In fact, it would be surprising if they did not notice the effect. They then took that knowledge and applied it to the conservation of commercial resources such as sea cucumbers, trochus and green snail that were being harvested and exported starting in colonial times.

Thus, the ancient system of putting a taboo as a customary practice rather than expressly a conservation one, was transformed into a modern management method to expressly protect particular marine resources in the quest to earn some cash. The context had changed from a cultural one to a commercial one. The way the taboo was initiated and implemented was also gradually transformed. Less emphasis was placed on the ritual formerly associated with the ancient custom taboos (such as pig killings) and the fines for breaking these taboos became mainly monetary, not items with cultural significance such as woven mats, kava or pigs as with the *kastom* taboos.

Essentially, a new custom was being invented through the transformation of an ancient one, one deeply rooted in peoples' cosmologies, to adapt to the social and economic changes that resulted from the arrival of European influences. Unfortunately, the respect for these more profane taboos, now normally referred to as 'bans' in many areas to denote this transition, has also significantly declined.

This also is a point made by older chiefs knowledgeable in *kastom*, that the system to protect commercial resources used today is like 'playing' with the power of *kastom*, i.e., the proper ritualization and spirit of a taboo. These chiefs are concerned because these contemporary taboos or bans are being so regularly broken compared to the ancient ones, that they serve to undermine the true power and respect of *kastom*. These *kastom* purists no doubt fear the eventual loss of respect for the ancient taboos as well, as a consequence of this gradual process of transformation from the sacred to the profane.

Since Independence in 1980 there has been a significant increase in the use of taboos to restrict harvesting of commercial products like trochus and in the use of introduced fishing gear to manage the reef resources in Vanuatu. This in part was due to the land and reefs going back to the indigenous landowners at Independence and this being enshrined in the new Constitution. In fact, as discussed above, the main issue behind the independence movement was land alienation. The increase in population and the consequent increase in competition for resources has also provided the impetus to gradually increase management efforts.

Newly independent Vanuatu was also a period when people were again proud to revive and transform some of their ancient customs and to openly express them, once the shackles of colonial rule and oppression had been cast off. One must remember that there was very little, if any, appreciation of the value and merits by Europeans of traditional knowledge and practices during colonial times. Even most 'New Hebrides natives' at that time had been convinced that the European ways were superior in all regards, and that their *kastoms* were part of their heathen past, a time still referred today as "the time of darkness", a term obviously imposed by missionaries.

***Cooperative management initiatives***

In the early 1990s the practice of putting taboos or reef bans received a significant boost when the Vanuatu Fisheries Department endorsed them in order to enhance the level of community management of trochus. In part, this was to protect transplanted juvenile trochus on select reefs as part of the Department's trochus hatchery program. The research section of the Department initiated a program of cooperative management for trochus whereby they would provide biologically relevant information such as growth rates, lifecycle information and size at sexual maturity to villagers (Amos, 1993).

This information was made available to local communities such that they could draw upon it to improve the timing and duration of their trochus taboos while, at the same time, appreciate why the Department had introduced minimum size limits. Understanding the rationale behind the size limits was found to greatly enhance compliance with them, once villagers understood that respecting the size limit allowed their trochus to spawn for many months before being harvested.

This cooperative management approach rapidly expanded to cover green snail and beche-de-mer to assist villagers with the management of their other most commonly commercialized nearshore resources. Following Johannes' (1998a) recommendations, the Department's Extension Services were used to broaden the

scope and delivery of these cooperative management efforts. The Vanuatu Environment Unit, Cultural Centre and some NGOs also became actively involved in promoting the use of traditional and 'contemporary' taboos (i.e., those used for the protection of commercial resources) and in furthering cooperative management efforts to reach more remote communities. Through this process, because it was based on *kastom* and *because it works*, the use of taboos on fishing gear and areas to manage virtually all resources of the nearshore reefs, including those used in subsistence, has become very common, very popular and generally very successful in managing nearshore marine resources in virtually all areas of Vanuatu.

The success of this form of community-based management may be attributed to the fact that; a) resources **will** recover as part of a natural process if left undisturbed for a sufficient period (provided they haven't been completely decimated and the environment remains stable; b) CMT is formally recognized by the Government so communities have the legal right and autonomy to make their own management and enforcement decisions based on their local knowledge of the resources and environment; c) under CMT, the benefits of sound management decisions and restraint on the fishing grounds are realized by the resource owners themselves thus providing the incentive to manage well; d) respect for *kastom* and traditional authority upon which this system of management is based although it is showing signs of stress, is still relatively high in most areas of Vanuatu; e) the well directed assistance of government and ngo's in furthering cooperative management; ie, providing access to biological information relevant to management for villagers to draw upon and integrate with their local knowledge; f) the village and their chiefs decide in the end what the management regime will be taking into account their own unique kastoms, marine resources and socio-economic needs and they monitor and enforce it themselves; this system must represent the ultimate in decentralized management;

A survey of the villages originally surveyed by Johannes in 1993 and surveyed again in 2001 by Hickey and Johannes (2002) indicated that the number of village-based marine resource management measures (taboos) more than doubled in the 8 years between surveys. And the trend is continuing. Of concern however is that an increasing number of these taboos no longer have much or any *kastom* association or ritualization to anchor them in the deeply rooted traditions of the past. As mentioned, many islanders now refer to them simply as 'bans' to make this distinction.

In fact, this trend has more recently taken yet another step away from the protection of resources with the inclusion of *kastom* as its cornerstone. The concept of a MPA is well known to most whom have spent time in an industrialized society. These are generally 'no-take zones' designed to compensate for often extreme over-fishing and environmental degradation which now characterizes most if not all industrialized country's waterways. Locking up a bit of nature in a museum-like no-touch area is meant to maintain a bit of real nature in the form of Marine Parks or MPA's while the rest can often be degraded and over-fished.

A large regional environmental organization now sponsors workshops in Melanesia, and other parts of the Pacific to promote MPA's as if they are oblivious to the context of thousands of years of marine resource management in the Pacific. Even the term CMT, which was closer to describing the reality of marine resource management in Melanesia, as described above for Vanuatu, and a popular term only a few years ago has been left behind for the new and very foreign concept of a MPA.

More recently in Vanuatu, well-meaning overseas volunteers have arrived and attempt to set up MPA's as well as terrestrial protected areas. The idea of simply reviving and supporting traditional practices relating to resource management seems to be sometimes overlooked, and instead inappropriate models from industrialized countries are sometimes imported and supported by overseas donor agencies more comfortable and familiar with these models. Truly, from the sacred to the profane.

Consequently, chiefs are facing new challenges in the maintenance of respect for their leadership and for the taboos used to protect the resources. These challenges are greater in areas where internal community disputes remain unresolved. In fact most of these disputes stem from the colonial impacts outlined above. In summary, they are most often related to;

Land Disputes - relating to the massive depopulation
and migration of peoples to the coastal settlements or missions many generations ago means actual territory borders are not always apparent today; also when it comes to leasing land, conflicts arise from the gap between customary law and western law, namely one individual signs the lease (and gets the benefits)

from land customarily held by an extended family of larger group;

Leadership Disputes – relating to missionaries changing the chiefly lines many generations ago that are no being challenged in many areas wishing to re-instate their ancient chiefly line; as well the translocation of many different nasara's (clan based settlements) into composite coastal villages during the missionization process often manifests in internal rivalries over chieftainship;

Religious and Other Divisions - many communities are divided amongst different Christian faiths, particularly with the recent advent of numerous new faiths, many of which openly scorn *kastom*; some communities are also internally divided due to different political affiliations; some communities also have internal divisions relating to predominantly Anglophone or Francophone alliances as vestiges of the condominium colonial rule by France and England;

'Independence' Disputes - when the land and reefs were given back to the customary owners at Independence some families took this to heart and interpreted this to mean that the chief no longer could make any management decisions regarding their land or reefs including the placement of taboos, as was done in the past; in fact there is an additional article also enacted at Independence that states " The rules of custom shall form the basis of ownership and use of land….".; this would still 'legally' keep the chiefs in the management loop in areas where this was the *kastom*;

The peri-urban areas of Vanuatu face perhaps the most serious challenges for maintaining respect for resource management related taboos in that they are generally more exposed to the cash economy and western education; two additional factors cited in undermining this respect. The Fisheries Department has thus seen a dramatic increase in the number of requests for assistance from chiefs in enforcing their taboos in the last 5-6 years.

The need to back up the rulings of the chiefs in Vanuatu is not isolated to the use of conservation taboos. Numerous other issues affected by the erosion of traditional leadership and cultural practices have begun to affect other areas of life, especially in the urban areas. The Government is thus contemplating introducing some sort of legislation to formalize support for the chiefs' rulings from their traditional village courts, but a clear path for Government to follow has not yet emerged.

One approach the Fisheries Department is considering is the passing of a "Closed Area Act". This would, upon a community's request, allow the Director of Fisheries to enact a legally enforceable closure for conservation purposes. The Department feels that this will serve the function of backing up the chiefs and their peoples' wishes to maintain a closure or taboo in areas where it is not enforceable through traditional means. The Environment Unit has included a 'Community Conservation Area' in a new Environment Act recently passed (but not gazetted) to also provide formal state support to community's wishing to protect areas but are not able to do so soley through customary means.

The increasing gap between the ancient taboos with a strong cultural context that clearly correlates with greater respect for compliance and the contemporary transformations or modern 'bans' (particularly the imported concepts with no cultural context) and an increasing trend in non-compliance reveals a clear trend from the sacred to the profane. This has resulted in some areas initiating a counter-trend back towards *kastom* in an effort to maintain respect for taboos.

These communities have undertaken to revitalize, transform and invent rituals associated with the placing of reef taboos, and thereby keep them in the realm of the sacred and rooted in the beliefs of their ancestors and thus ultimately more respected. This is done by re-enacting some of the elaborate rituals upon the initiation of these taboos, including the killing of pigs for a communal feast and placement of the taboo leaves associated with the cultural area.

Such a taboo initiation would be presided over by all of the local chiefs and witnessed by all of the villagers in the area. A custom fine for breaking the taboo is also specified at the outset; this would consist of pigs, mats, kava, shell money or other articles of custom significance. This is in contrast with the cash fine normally levied for many of the commercial taboos. However, if pigs are killed at the initiation, then following most areas customs, pigs will also be part of the fine. Fining people for breaking a taboo in articles of custom significance is obviously much more profound than people being fined in cash.

Another modern transformation seen is the use of Christian blessings on a taboo. Often there will be a combination of both custom and Christianity involved. This will help to appeal to all, no matter which belief system individuals in a community may lean towards. It also facilitates the inclusion of both powers, making

it more powerful, whilst endeavouring to satisfy all community members. Some areas also integrate modern administrative protocols to help formalize and ritualize the initiation of a taboo.

For example, on southern Malekula, a Memo of Understanding between all nearby clans was used to help ritualize the initiation of a long term reef closure, and as a means to maintain cooperation and respect from the clan members the MOU included, "That all marine wildlife in the Sanctuary belongs to God" and further, "That the Sanctuary is like a church, to maintain the Christian faith in the creator and everyone should value what it stands for."

The initiation of this Sanctuary also included blessings from a church elder and a pig killing ceremony, kava drinking and involved the placing of traditional *namele* leaves to indicate and oversee the taboo. The initiation of this long-term tabu was indeed a grand fusion of *kastom*, christianity and administrative protocols. Respect and compliance for this Sanctuary has remained high, as have the management and fishing benefits, after many years of operation.

The emergent trend is that there now appears to be four ways of empowering taboos in Vanuatu. The method used depends on how much respect for custom and/or the Church there is in the area. These four methods of empowerment / enforcement include the *kastom* way, the use of both *kastom* and Christianity, the use of just Christianity (rare) and the emerging use of the state to enforce the taboos. There is also the potential synergy of using all three incentives, *kastom*, Christian and state to empower taboos. The inclusion of the state may assist in compliance, but decreases the degree of decentralization and autonomy communities have enjoyed for centuries in managing their own affairs, including resource management. It also incurs significant financial burdens to the state, which it previously never had.

The use of the state has already begun unofficially, with the police often lending a hand to persuade repeating transgressors of the taboos to pay more respect to them. This is most commonly occurring in the peri-urban areas where custom has been the most seriously eroded and there are police available to take this sort of action. Most rural communities have no police readily available nearby; in fact most islands have no police on them at all, a tribute to the chiefs and the capacity of their customary laws in regulating the island societies, as they have done for thousands of years.

Vanuatu today is increasingly facing a crossroads in trying to reconcile both traditional values and the ancient rhythms of life and its emergence into the economic development expected of modern statehood in a rapidly changing global arena. For example, structural adjustments were recently introduced starting in 1997 funded through 'soft-loans' by the Asian Development Bank to reform Government policies and attempt to usher Vanuatu into the realms of globalization. At the same time there is enormous external pressure for accession to the WTO.

The pressure to 'develop' and join the cash economy under the banner of globalization is finally being felt even in rural Vanuatu; an area of the world that had been close to self-sufficient for 1000's of years. Now even island people living off the land are expected to compete on even terms with the industrialized nations of the world as governed by the WTO. These factors are sure to increase the pressure on the limited resources and fragile environment of these small tropical islands as well as putting further pressure on the traditional systems of management that have served so well for so long.

Whatever fork in the road Vanuatu decides to take, it seems clear that if the customs and values associated with the ancient traditions can be supported and maintained by some means through this process of westernization and globalization, that the management of resources and therefore the people of Vanuatu will be that much better off, as will their descendents. If Vanuatu can manage to maintain its relatively pristine islands, vibrant cultural diversity and smiling, genuinely happy people into the future, the people of the wealthy industrialized nations will no doubt pay handsomely to come and visit one of the few remaining places on the planet where this is so.

## Parallels in Canada – from Sacred to Profane

By way of comparison, there would seem to be a parallel with what has happened in Canada where the resources of this country were formerly managed by the First Nations. They too seemed to follow a natural rhythm of harvesting and consumption based on their cosmologies, which also embraced a conservation ethic based on respect and on the limits of nature, and which are also in the realm of the sacred. This contrasts starkly with the profane approach undertaken by the Canadian Government which apparently relies primarily on scientific models of management and often seems to ignore much of the richness and usefulness of the TEK held by the First Nations regarding their resources. It would seem that

the conservation of resources in Canada could benefit significantly by the adoption of a cooperative management approach, as seen in Vanuatu. This involves the integration and application of both scientific and traditional knowledge like the rich corpus of TEK available to the cooperative conservation of resources. It also involves the devolution of much of the decision making and data collection to the communities residing in the area, and thereby to the ones most intimately associated with and dependant upon the resources. It seems rather wasteful to ignore the thousands of years of knowledge acquired by the First Nation peoples about the resources that could be put to work to conserve them.

The advantages of this synthesis of traditional and cooperative management approach found today in Vanuatu can be summarized in the seven C's.

### *The Seven C's*

*Communities* - This system of traditional management is community based. Those most intimately associated and knowledgeable and dependent on the resources have autonomy over management decisions. This is common sense!

*Conservation* - Most island people of the Pacific have been successfully managing the limited fragile resources of small tropical islands for thousands of years. Their conservation methods have proven themselves through the test of time. Europeans living on large continents have only discovered the limits of the resources and the need for conservation in the last 40 years or so. Science, while a powerful tool, is only beginning to get a handle on the environmental impacts of human activities and is still struggling to find workable methods to conserve resources. The cooperative management approach helps traditional conservation methods to adapt to contemporary issues like modern gear, changing social conditions and the commercialization of resources.

*Counterparts* - In fact, all of the traditional methods have their counterparts in the modern western approach. Closed seasons, gear restrictions, closed areas and limited access were all traditional methods. Europeans have just started to learn to use these relative to Pacific Islanders.

*Capacity* - It is clear that the traditional system has the capacity to manage and conserve the marine resources while reducing conflict amongst resource users and ensuring a reasonably equitable distribution of benefits. This is clear from the relatively pristine nature of the reefs still found in most areas today after three thousand years of use.

*Cooperation* - This system is based on the collective cooperation of the community members, fishers and resource owners for a common goal. Also, in cooperative management there is good cooperation between the rural communities and the Fisheries Department. This has been achieved through the development of respect and trust over time. This then allows for the two to work together to refine the traditional system and to adapt it to the modern reality of commercial exploitation, social changes and the introduction of modern fishing gear.

*It's Cool* - because it's by the people for the people, and it's free. It costs the government very little in terms of monitoring and enforcement as the communities do this.

### *Canada Seems to Lack the Last Two*

*Cooperation* seems to be replaced by *Conflict* in Canada for the most part. The recent news item 'Burnt Church in New Brunswick' over lobster fishing rights would highlight this. A police boat literally drove over a small First Nations boat forcing the occupants to jump into the cold waters in fear for their lives.

### *That's Cowboy…*

After some hundreds of years we really have not progressed much beyond the old Cowboys and Indians mentality. It's time for the Canadian Government to reassess its management approach, and to initiate the necessary steps to build trust and respect with First Nations communities and get it back to cool and cooperative. We would all benefit, and so would the resources.

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