

# Community sea tenure and the establishment of marine reserve networks in the Pacific islands.

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**Abstract** Recent studies call for the scaling-up and networking of local marine reserves for ecological effectiveness and resilience. Currently, the Pacific islands are witnessing an explosion in the number of community-based marine reserves. Village sea tenure is the foundation for the development of reserves in the Pacific and likely poses a distinct challenge to coordinated marine management and networking. We examine the Nguna-Pele Marine Protected Area network in Vanuatu to understand how sea tenure may act as a barrier or advantage to multi-community reserve networking. We found that networks of community reserves may be practical in the Pacific islands if they address a locally-defined need and build on existing collaborative governance arrangements. Networking frameworks must flexibly match local sociocultural contexts. We conclude that networks of reserves do not necessarily usurp management or ownership rights but rather may strengthen and legitimize community sea tenure regimes in the Pacific islands.

**Key words:** Marine reserve, customary marine tenure, Vanuatu, taboo, marine protected area network

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## Introduction

There has been a recent call by marine scientists to scale up global marine management focus from single marine protected areas to representative and connective networks of marine reserves (Hughes et al. 2005). In the Pacific islands however, governance and decision-making institutions most commonly operate at the community level (Berkes 2009). Non-centralized governance and ownership poses significant implementation challenges for effective and well-coordinated marine reserve networks in the Pacific islands (Lam 1998).

Though much is written on the diversity of marine tenure arrangements and management practices utilized in the Pacific islands (Bartlett et al. 2009), few studies have empirically examined the characteristics that allow for successful cross-tenure networking initiatives. We present the Nguna-Pele Marine Protected Area network in Vanuatu as a case study to further understand the conditions that enable a network of marine reserves to function across community tenure boundaries.

## Methods

We carried out this research on the islands of Nguna and Pele from 2005-2007. A team of local researchers conducted interviews with over 80% of the population in six study communities. Qualitative data on local sea tenure arrangements was collected via focus groups, transect walks,

document analysis, participant observation and key informant interviews.

## Results

### *Marine Tenure in the Pacific islands*

The most authoritative definition of customary marine tenure was forwarded by Ruddle et al. (1992) where: “customary” refers to a system that emerges from firmly traditional roots and has continuous and meaningful links with the past as it adapts to handling contemporary issues; “marine” refers to the system as dealing with coral reefs, lagoon, coast and open sea and including islands and islets contained in this overall sea space; and “tenure” refers to a social process of interacting activities concerning control over territory and access to resources.

More recently Aswani’s (2002) definition removes reference to historical practices and defines sea tenure as “a situation in which particular groups of people have riparian entitlement to nearshore areas, and in which their entitlements to use and access resources are excludable, transferable, and enforceable, either conditionally or permanently.”

### *Case study context: Nguna and Pele islands*

Nguna and Pele are islands (17°S and 168°E) in the central Shefa province of the Republic of Vanuatu.

Each island is surrounded by fringing reefs, typically extending from 10-200m from the shoreline.

#### *Human settlement and organization*

The population of Nguna and Pele was just over 1100 people at the time of the last national census (Bakeo et al. 2000), and is spread unevenly among sixteen communities, ten of which are located directly on the coast. No village is more than three hours walk from any other.

Since the time of missionization of the two islands in 1870, there have been several major changes to human settlement; massive depopulation forced some villages to converge and move towards the coast while others were abandoned (Don 1918). The most important impact missionaries had in the Nguna-Pele area was their reorganization of local social structures; a shift from a clan-line elected system of governance to a hereditary royal-family chiefly system.

Today a hereditary paramount chief presides over each village, assisted in governance duties by one or more lower chiefs. The function of the chief largely deals with preservation and promotion of custom (Bolton 1998). Day to day affairs and administration of the community however, falls to the democratically elected village council as is common in other parts of the country (Huffer and Molisa 1999). The council apparatus is a direct artifact of the influence of the Christian Church, and is often made up of several specialized committees.

#### *Terrestrial resource use and ownership*

In Vanuatu all land belongs to customary owners by decree of the national constitution. However, the definition of customary ownership remains undefined and has partly led to the current legitimization crisis facing the nation (Nari 2000). In Vanuatu, customary land owners are not always (or even usually) individuals, a trait that existing statutory land policy does not appropriately capture (Regenvanu 2008). Group right of access to natural resources is the norm in Pacific island societies, and is especially relevant and commonplace in the marine context (Ruddle 1998).

Encouraged by regional policies and exacerbated by investor-driven land acquisition (Hassall 2005; Regenvanu 2008), there is a legal trend away from group and toward private land ownership in Vanuatu. On Nguna and Pele, land areas and garden plots currently have relatively clear boundaries, though ownership lies with extended families rather than individuals. However, few legal deeds have been granted over parts of these two islands.

Village boundaries are perceived differently to family land parcels. A strong sense of village-ism and community patriotism exists on Nguna and Pele. Belonging to a community or village is a critical safety net, protecting against need by ensuring access to resources for even those without hereditary entitlements. Thus, the geographical boundaries of a community hold utilitarian importance on Nguna and Pele, even though most families have access rights to land outside their own community. Village boundaries on Nguna and Pele commonly originate from the top of a hill and follow a well defined physical feature, such as a creek or stone wall, to the coast.

Due to the uncoded nature of a "community", and the dynamic settlement context since missionization on Nguna and Pele, village boundaries are typically unclear and commonly under dispute. Most villages have areas of overlapping boundaries with adjacent communities. An unremarkable fact of life for most residents, these disputes have occasionally flared up into hostilities when benefits of tourism or infrastructural development were at stake.

Despite infrequent tensions between communities, the Nguna-Pele area is locally renowned for its area-wide historical collaboration. Villages on the two islands share a unique dialect as well as similar cultural and customary practices. Inter-marriage among island villages ensures social connections remain strong. Another legacy of the Church's presence is the existence of robust, dual-island networks like the Nguna-Pele Presbyterian Session uniting the elders from each community, and the Nguna-Pele Council of Chiefs (NAPE).

#### *Marine resource use and ownership*

Few individuals or households on Nguna and Pele make an exclusive living from the sea, though most are involved in opportunistic fishing and reef gleaning. Some coastline villages, those on Pele for example, have a more frequent interface with sea resources than their inland counterparts. Household diet of sea resources is variable on both islands, dependent on the capacity and time allocated to fishing by family members.

In stark contrast to land ownership, areas of reef are not partitioned off for use by particular families or groups. Reefs are open for use by all members of a given community, with residents feeling little desire to exclude their fellow community members. Regular access to marine resources may be an important motivation for seeking clear and well-recognized community boundaries.

Community access to marine resources is generally allowed, as long as it fulfills only

subsistence or small-scale commercial needs. Major developments, such as shoreline construction or large-scale commercial harvest, require permission of the chief and the village council. It is not uncommon for a village member to make a monetary contribution to the council when undertaking a larger-than-usual harvest from village sea tenure area.

Marine boundaries are inherently difficult to define, and there exist a myriad of perceptions on the local extent of sea tenure areas on Nguna and Pele. Some residents consider that the outer edge of the reef constitutes the extent of a village's sea tenure. Generally however, it would not be tolerated for an outsider to fish within several hundred meters of the edge of a village's reef. Accordingly, many consider the sea tenure boundary to extend well into deep water, with some citing the horizon.

#### *Marine governance*

Exclusion of non-community members from using village resources is a *de facto* practice on Nguna and Pele. Permission must always be sought before reefs can be used by an outsider. Full time residency is the most common, but not exclusive, determinant of community membership. One role of the chief is to grant or revoke permission for outsiders to use a community's reef resources. This right does not imply that the chief owns those resources, but only that he or she is symbolically responsible for reef stewardship. In practice, the village council holds daily responsibility to define the uses, developments and restrictions within the community's sea tenure area.

The Nguna-Pele area may be one of the most advanced in Vanuatu in terms of its general consciousness of natural resource management issues. Each community's village council has established a conservation committee, whose primary responsibility is the maintenance and regulation of terrestrial and marine resources. Conservation committees propose and adapt the specific rules for use of the reef. These committees report to and follow the mandates of the village council, who in turn work under guidance of the paramount chief.

It is considered everyone's responsibility, including residents, the conservation committee, village council and chiefs, to comply with village marine regulations and report trespassers. Enforcement and surveillance is not difficult in most cases as reef areas are visible from the village. However there are cases on Nguna and Pele where the reef is located away from the settlement area, and trespassing events are likely more frequent.

Breaking the rules generally invokes a fine payable to the chief, which is then divided among the council and conservation committee. Infractions that involve non-community members however, are dealt with directly by the chief or village council of each respective community. Fines for non-community members are generally higher as these offenses are viewed as more severe.

Tension and ambiguity characterize the relationship between village, provincial and national-level marine policies. While higher levels of government recognize local governance institutions through Island Courts and Land Tribunals, village councils do not receive formal endorsement in national legislation. The Environmental Management and Conservation Act recognizes marine regulations set by village councils, but does not provide for enforcement or penalization.

#### *Fisheries closures*

The closure of all or part of a community's sea tenure area is widely practiced in the Pacific islands (Caillaud et al. 2004). Closures employed in the past by communities on Nguna and Pele were generally enacted in order to stockpile resources in preparation for a celebration or community event such as a wedding or chiefly ordination. Closure duration was commonly pre-decided, with enactment and rescindment independent of the quality or quantity of resources available on the reef.

In contrast, recently established marine closures in the Nguna-Pele and surrounding areas are being established with the clear objective of resource maintenance or conservation (Bartlett et al. 2009). Residents acutely perceive the decline of marine resources on their tenured reefs, and are aware of the global state of marine resources. A conservation ethic is real and very apparent on the islands of Nguna and Pele despite ongoing debates regarding its historical existence in the Pacific (see Foale and Manele 2004).

Contemporary community reserves in the region are small, typically less than 0.05km<sup>2</sup>, and cover from 15-45% of the available sea tenured area (Bartlett et al. 2009). Strong sea tenure is the ultimately the foundation for the establishment of community fisheries closures.

#### *Diverse marine reserve expressions*

Although the goals and objectives of individual marine closures are similar, their form and expression is extremely diverse among communities on Nguna and Pele. We found three marine closure designs common in the Nguna and

Pele area: permanent, rotational and periodically harvested reserves (Bartlett et al. 2009).

Permanent reserves are those in which the community indefinitely closes all harvest. Rotational reserves do not permit harvest during their term but are designed to be permanently opened in the not-too-distant future. Periodic reserves may allow infrequent and well-controlled harvest at any time, but generally not more than one or two times per year. Reserves (of all types) commonly restrict all species enclosed within, though reserve openings and harvests may target specific organisms.

The decision to implement a marine reserve is nearly always taken democratically. The village conservation committee commonly makes the suggestion in a village meeting, followed by public debate among residents. If a closure is approved, residents discuss potential locations and the type to be implemented. Final approval by residents to declare a reserve can take up to a year of detailed planning by the conservation committee. Once approved, a date is fixed so that notices can be sent to adjacent villages and customary preparations made.

Marine reserve declaration is attended by customary ceremony. The village chief, as the symbolic resource steward, proclaims the area off limits following the terms set by the community. The paramount chief will generally evoke ancestral protection over the area, deterring future rule-breakers and trespassers. Often, several pigs are killed at the site. Boundaries of the closed area are demarcated with recognizable custom objects. On Nguna and Pele, a *namele* palm leaf tied to a stake is the most commonly-employed marker, though large white stones, pig jaws and painted signs are also used.

#### *Networking of community marine reserves*

In 2002, four paramount chiefs established the Nguna-Pele Marine Protected Area Network in order to better coordinate the management of their village marine closures. They felt that village strategies were ineffective in isolation; resources were declining at an unprecedented rate. With the technical and ideological assistance of the Fisheries Department, the Vanuatu Environment Unit and international volunteer organizations, the network's membership has since expanded to include 14 communities on Nguna and Pele.

The Nguna-Pele MPA network is locally managed by representatives from each member community. Membership is open to all communities on the two islands. A full-time local manager, several part-time local staff and local

village volunteers carry out the day to day activities of the network. These activities include cleanup campaigns, awareness talks, sea turtle tagging, eco-tourism, tree planting, social and ecological monitoring and management evaluation.

The Nguna-Pele MPA network does not hold ownership or enforcement rights over the sea tenured areas of any of its village members, nor does it dictate the type of closure and associated rules to be implemented. Rather, the network brings together representatives from each community to discuss, coordinate and collaborate on marine and terrestrial natural resource issues of area relevance. Networking enhances the political bargaining power area communities have with the national and provincial government in terms of the support they receive for marine management.

The benefits of networking are locally recognized, with villages often willing to adopt management strategies that may be most valuable to neighboring, 'downstream' communities. For example, a recent crown of thorns starfish outbreak was contained because area representatives planned and implemented a cross-tenure clean-up strategy. Discussions at Network meetings have also influenced the positioning of new reserves, particularly at boundaries with other communities, in order to create larger cross-tenure reserves. This island wide collaboration represents Vanuatu's first attempt at ecosystem-level conservation planning.

#### **Discussion**

Community tenure potentially limits the establishment of marine reserve networks in the Pacific islands. However, the Vanuatu case demonstrates that despite strong tenure, cross boundary decision-making and influence can be achieved through local networking. We have shown how village sea tenure is maintained as resource governance is simultaneously scaled up. Several factors have facilitated the success of the Nguna-Pele MPA network, some of which may be applicable in other Pacific island contexts.

On Nguna and Pele, marine resources are perceived to be in severe decline, likely driving the need and motivation for collaboration among area villages. A networking and conservation ethic exists because residents have directly observed the frustrating ineffectiveness of individual village actions. Though not acting completely altruistically, communities have shown they are willing to compromise and collaborate to obtain at least some reprieve from the locally perceived marine crisis. Inclusive and representative policies minimize the potential that the network serves the interest of some communities over others.

Networking in this case study is locally supported as it flexibly incorporates different types and expressions of marine reserves, and integrates these within chiefly and ceremonial practices. It does not discriminate or attempt to force a single approach or strategy. The Nguna-Pele MPA network's structure emulates previously existing island-wide organizations, eliciting local trust and participation. Networking is enhanced because all member villages speak the same language, are geographically proximate and share a historical trajectory. Management and implementation by local people helps engender the support of other island residents.

The costs of scaled-up governance are minimized at Nguna-Pele as individual reserve maintenance remains firmly situated at the village level. Communities are empowered, and their managerial roles expanded, through the retention and adaptation of tenure-based models of management and enforcement. In other words, reserve management (and associated cost) remains decentralized, while simultaneously allowing for scaled-up cross-tenure coordination. While not directly implementing or managing reserves, the Nguna-Pele MPA network has a powerful indirect influence on area-wide management scope and connectivity.

### Conclusion

We know that marine commons dilemmas can be solved at small scales (Berkes 2006), with community conservation areas an increasingly popular approach (Berkes 2009). However, this case study demonstrates that scaled-up collaborative marine governance is achievable in the Pacific islands without compromising community marine tenure and associated management rights. Networks of marine reserves may be a real possibility in the region if they address a locally-identified need and build on existing management and governance arrangements. Flexible networking frameworks are required that reflect local sociocultural contexts. Ultimately, strong village tenure can be an advantage for establishing effective marine reserve networks, and may be critical for scaling up marine governance in a region with limited centralized governance capacity.

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