

Local knowledge to manage and regulate reefs

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The knowledge of fish passageways is often shared at sea without any cartographic support, but many fishermen know perfectly well how to locate their routes on a map. Vao, Isle of Pines, 2016. © M. Juncker.

New Caledonia is a sparsely populated territory, but its inhabitants are passionate users of the lagoons and reefs. This prompts authorities to implement reef management measures, i.e., to organize and control access and uses. This management is usually carried out by professionals, supported by technical and scientific knowledge which is driven mainly by ecology and biology, and/or following international engagements that involve both ecological and political stakes. In most cases, scientific knowledge is the main driver in creating regulations to maintain reefs and their species in a "good ecological state". However, this management can also be driven by other types of non-scientific knowledge. This local, "vernacular" knowledge, which conveys local values and norms, sometimes called "traditional" knowledge, is owned by different stakeholders and

social groups who are users of the reefs. They often are complementary to scientific knowledge and are sometimes linked to sustainable reef management practices. Knowing and taking into account local knowledge can then directly guide reef ecosystem use practices. It can also inform scientific knowledge and involving the various users in the development of common rules promotes efficient management. When these rules become governmental or provincial laws, which are meant to be accepted by everyone, there is more chance that they will be followed by the people of New Caledonia if they are informed by local knowledge. Knowing, informing and recognizing local knowledge is therefore an essential step in the process of building and changing environmental regulations.



The decked pirogue of the Isle of Pines allows to move discretely to catch fish. It still exists today thanks to a few elders who passed on their knowledge to their children, both on how to build the pirogue, and also to locate schools of fish and cast the net. © M. Juncker

Local ecological knowledge is based on a regular experience of the environment

“When the whales arrive, their breath looks like smoke. It reminds us of how to burn the field for its preparation. They clap with their fins, like when you plant the yam.” (Grand Sud). The arrival of the whales informs locals of the time to plant yams.

“When the *iiletch* tree is flowering or when oulek reeds are blossoming, it means that the dawas [*Naso unicornis*] are fat. When the *wiitch* tree makes fruits, it means that the oysters are full.” (Hienghène). The blossoming and fruiting of terrestrial plants

indicates the favorable season for fishing and the harvesting of certain fish and seafood.

Local ecological knowledge is empirical knowledge, linked to practices and to an “engagement” with the environmental elements. Corals, passes, fish, sharks and many other animals of the lagoon are known and recounted from generation to generation. In the Kanak world, this knowledge relates to the world of elders as well as food, social or economic resources. It is acquired through the experience of each person and is therefore constantly renewed through regular, often daily, interactions. This experience includes practices and observations of the environment that guide fishing practices and trips on the lagoon.

Participative customary management works

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Yeega and Dohimen Marine Protected Areas in Hychen commune. From DDEE-SMRA, Province Nord.

In New Caledonia, the four authorities (government and island, North and South Provinces) have jurisdiction over environmental management, which leads them to work closely with customary authorities. These stakeholders often play a central role in the co-management of maritime areas.

Even if they do not physically occupy the entire space (whether marine or terrestrial), communities maintain a special bond with it. This link can be the result of alliances, the supply of essential resources or simply a mythical one. It is a true bond that inspires

the symbolic identity of the Kanak people, translates into a socialization of space and different lifestyles and is conveyed by legends, myths and practices.

The particular links that Kanak people have with the marine and terrestrial environments have been further described by various studies. In the Nouméa Accord and the preamble of the Organic Law, special attention is given to the integration of these cultural characteristics into the management of maritime areas.

The result of this is the participative management of New Caledonian sites. For instance, UNESCO requires the involvement of local communities in the management of World Heritage sites. In New Caledonia, the participation and involvement of customary communities has been pivotal.

This customary participative management must take into account several factors for the best possible implementation of the practices in the field. To quote the words of customary communities, "the souls of the elders watch over people and the implementation of their actions".

This requires the respect of a number of practices related to the Kanak culture. It is often described as "making a custom offering" ("faire la coutume"), but these few words cover several realities. A "custom offering" ("geste coutumier") is required as an introduction before establishing any action in a given place. This offering involves introducing oneself (showing one's face), bending down before asking to speak in order to express a request or to give responses, without offending the elders, and offering a gift related to this request (e.g., a yam, mat, etc.). It is the start of everything that is undertaken in the customary world.

Customary participative management also integrates a connection to space and time. Beyond the physical differences (land and sea, surface and contents), Kanak people consider their land as a whole (fauna, flora, biotope), from the crest line to the reefs, or even beyond the horizon line (d'Entrecasteaux Reefs are part of the Dau Ar/Belep chiefdom). This is why reefs often have vernacular names. Customary communities therefore have to include this reality in their management policy, and this is what the three provinces and the government of New Caledonia are trying to do.

However, the timeframe is often longer than usual. In a management framework, it is often necessary to adopt strategic orientations and actions to be implemented, which do not require the support of the majority but do need the consensus of all the families and/or clans involved. In doing so, the proposal must encompass all the "paths of alliance" or structures kinship for the



Traditional Kanak hut, tribe of Grand Atéou. © P.-A. Pantz

decision to be taken. This speech journey is sometimes long, but it is necessary and in practice, solutions are found to facilitate it.

On New Caledonian sites, customary participative management works well. Communities ensure that customary aspects are taken into account in the management and implementation of actions, as is done in Australia, to some extent.

The New Caledonian management committees, in which customary communities are strongly represented, are the formalization of this consideration. In these committees, customary communities become important management stakeholders and they are recognized as such. Management committees meet every two years under the auspices of the Conservatory of Natural Areas (CEN: Conservatoire d'espaces naturels) to review the management of UNESCO World Heritage sites.

In addition, the customary senate has a representative on the CEN board of directors, a representative on the management committee of the Marine Park of the Coral Sea and in other institutions dealing with environmental issues: the environmental advisory council (CCE: conseil consultatif de l'environnement), the economic, social and environmental council (CESE: conseil économique, social et environnemental), the area councils, and the youth councils.



Preparing a custom offering, Isle of Pines. © P.-A. Pant

Knowledge that builds culture and rules

A customary reserve is an area closed to fishing on a temporary basis. With flexible spatial and temporal boundaries, it can be opened occasionally during customary or religious events. Access to the reserve may be dependent on kinship and a customary reserve is generally associated with a tribe, according to the logic of a territorial continuity between land and sea (box. 29).

Unlike a customary reserve, a taboo site is permanent. Access to a taboo site implies the observation of a number of rules, such as requesting permission from the tribe or associated clan and making a custom offering as a sign of respect for the ancestors or entities that populate the site. These places are named and have a history known to the knowledge "owner" and, hence, the site.

Those who have lived alongside the reefs for a long time have developed particularly precise knowledge of the reefs, knowledge

that is an integral part of their history and culture. For Kanak people, as for other communities in the territory, this ecological knowledge is both the support and cement of their cultures. It is the basis of social relationships and pathways, links between individuals and between groups. It is linked to formal and informal rules for sharing territories and resources. These rules, and the customs associated with them, have a social function and can have beneficial consequences on the ecosystem, such as ensuring the good condition of a habitat or certain species of the lagoon.

Integrating local knowledge into lagoon management

As part of the inscription of the New Caledonian lagoons on the UNESCO's World Heritage List, several management committees have been set up, bringing together all socio-economic and institutional stakeholders, as well as representatives of local populations.

If the green sea turtle *Chelonia mydas* is fully protected in New Caledonia, it is still possible to obtain exceptional hunting permits for customary ceremonies. This system of derogations has been set up to take into account the specificities of Kanak culture. Depending on the provinces, it may still be subject to adjustments and consultations with the customary senate, customary areas and populations, in order to refine the standards if it produces local misunderstandings or presents implementation difficulties.

For the Environmental Code of the Loyalty Islands Province, developed using a participative approach, co-construction of environmental rules is a pivotal aspect of the law. The aim is to reconcile customary practices and legal regulations stemming from the national "biodiversity law" of 2016 and international objectives. The provincial authorities can now delegate the power of managing the maritime zones that are within their area of influence to the customary authorities, thus ensuring that endogenous law is taken into account.

These examples show that, in New Caledonia, there are many instances where local knowledge meets official initiatives for the management of reef areas: hybrid management areas where MPAs (marine protected areas) overlap with customary reserves or taboo sites; the consideration of fishing practices to define the level of protection of the most socially emblematic species; and so on. This plurality ensures compliance with management measures by formalizing customary practices that are not necessarily known to all users.

This is very important because, in Kanak societies, the social and political organization is part of a territorial relationship that includes both land and sea. Customary areas extend from inland (from the peaks of the mountain chain on Grande Terre) to the reef and further offshore. The reefs, islets and remote islands are "marked" by names that testify of their appropriation, as well as of ancient practices that are still present in oral tradition.

Faced with the hybridity of areas and the plurality of customary functions and logics mentioned above, the law has to adjust for better environmental protection, as seen in the Loyalty Islands Province.

Engaging knowledge dialogue

In New Caledonia, social science's study of the relationships between societies and their environments (and thus of how they "manage" the areas called "reef ecosystems" by scientists) is often interdisciplinary (involving not only anthropologists, geographers, socio-economists, jurists but also ecologists and biologists) and in direct contact with users and keepers of the local knowledge. This overlap between different forms of knowledge produces useful results for the implementation of informed negotiations between inhabitants and decision-makers, without which it would be difficult to conceive appropriate, accepted, acceptable and sustainable natural resource governance policies.

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