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Traditional management of marine resources in New Caledonia

by

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The purpose of this paper is to give a brief account of some of the characteristics of traditional fishing in the north of New Caledonia, which, although not all directly related to the management of marine resources, nevertheless play an important part in it and may eventually be put to use in the context of modern resource management.

This study of traditional fishing techniques was carried out in the Nenema zone, which comprises a population of about 470 Kanak people, distributed both on islands and on the extreme north of the mainland. The area is characterised by the poverty of the soils, which make fishing - mainly practised in the lagoon - more or less the only economic opportunity. A fishing cooperative, which brought together at the beginning about 60 fishermen, was set up in 1983.

For the sake of clarity, the traditional resource management mechanisms described have been separated into two broad categories; those which aim to limit access to the resources, and those which limit catches.

Limitation of access to resources

One of the most direct means of managing lagoon resources is to limit access to them: the foremost traditional mechanism used for this purpose by the Nenema is that of marine tenure.

The maritime zone is divided into territories that are owned, at two levels:

- At the level of the Nenema "country" (**phwaamva** in Nenema), as opposed to the Aonvase (Arama) "country", and to the Belep islands.
- Between the different Nenema "chiefdoms" (**Kavebu**), within the "country" itself.

It is still the practice today, from one **phwaamva** or from one **Kavebu** to the other to ask authorisation to fish in a territory which is not one's own. The different **Kavebu** are often united by the links of kinship, from which frequent exchanges of goods and favours arise connection with ceremonial events (marriages, funerals, etc) and the authorisation to fish is rarely denied. However, sometimes it may be withdrawn because of overfishing, as happened in Yenghebane in 1986: as a result of the almost total disappearance of beche-de-mer on their shores, the fishermen of that island feared degradation of the local ecosystem, and withdrew from the other islanders the right to continue harvesting the holoturians.

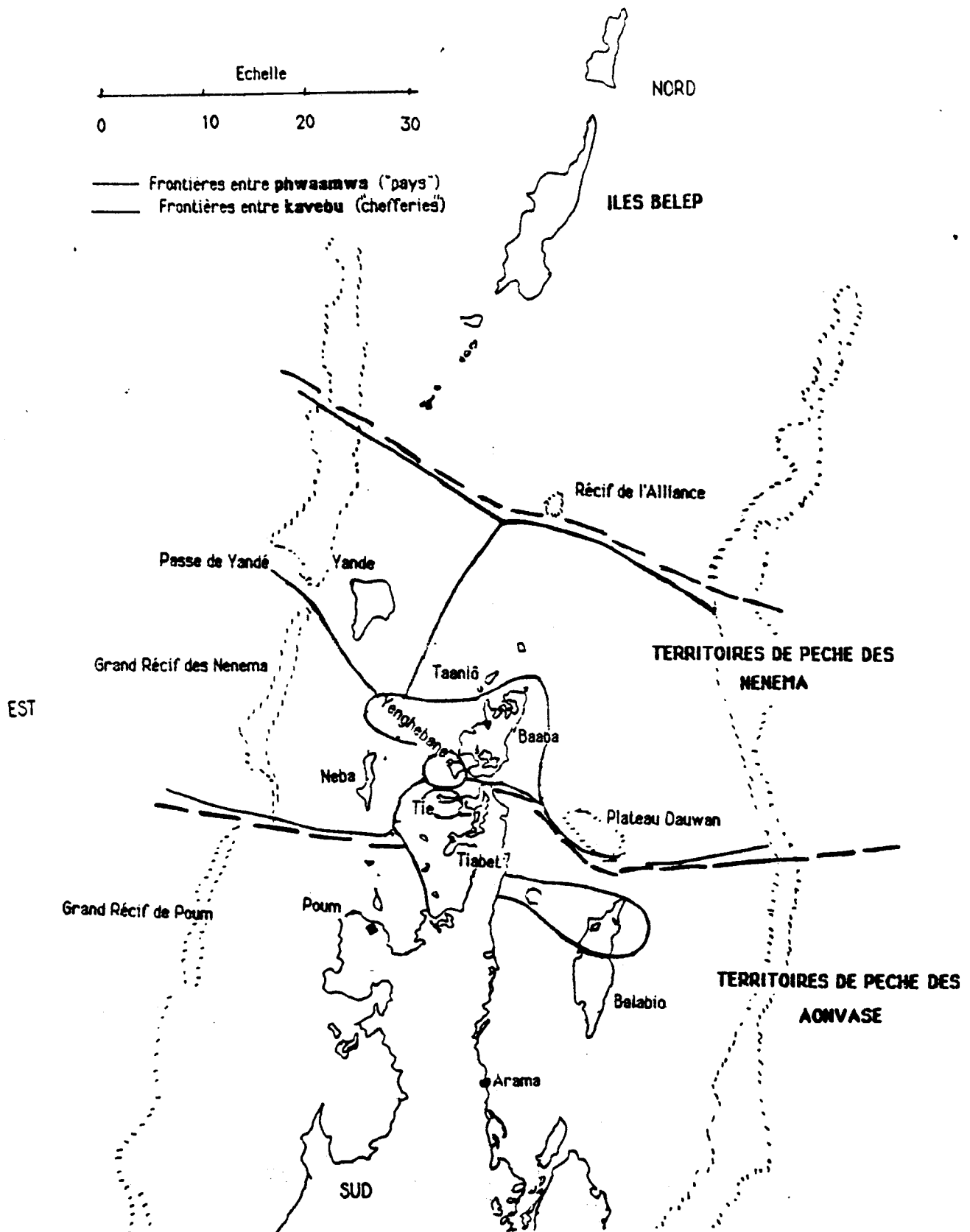


Figure 1: Fishing territories in the North of New Caledonia

The respect of marine territories delimited in this way is therefore generally maintained by the Nenema people, and even by some of the Europeans who have been established in the region for a longtime. However, this form of ownership is not recognised by French law, from which situation have arisen a number of problems faced by some professional fishermen - Europeans, Tahitians and others - who come to fish in the area with a permit from the Merchant Navy and Fisheries Service but without completing the formalities of access with respect to the chiefs of the different Kavebu whose territories they have come to exploit. The local fishermen are thus both offended by the lack of acknowledgement of their traditional rights, and fearful of seeing their resources endangered if they authorise fishermen who are foreign to the zone to work in their part of the lagoon, often with more extensive means.

The harmonious management of lagoon resources therefore requires at least a two-way flow of information - on the one hand, information on the extent to which the resources of the lagoon can be exploited without danger, and on the other on the traditional management of these resources - between the different protagonists in the exploitation of the lagoon.

Another way of limiting access to the resources of the lagoon is to forbid certain individuals from exploiting them. The sexual division of labour which is in force among the Nenema people works indirectly to this end.

This division of labour denied women access to anything that was not harvested by hand on the reef flat (octopus, shells, etc) or in the mangroves (mangrove crabs, etc). Net fishing, for example - which usually necessitated transporting several fishermen by canoe - was exclusively reserved for men. The **kedok** ('magic parcels') that certain fishermen had the power to place in the nets before fishing had a prohibitive effect on the presence of women. Today, although these practices are no longer used in the context of modern artisanal fishing, Nenema women do not usually use nets for fishing - and especially not in the presence of men - except for European-style castnets, which are a recent introduction.

On the other hand, certain exclusively female fishing methods, such as the capture of **shalaga**, or mangrove crabs (*Scylla*), are actually also practised by men - notably during important fishing expeditions. The technique itself remains practically unchanged, but the growth in the number of the participants in the fishing, added to their tendency to fish more intensively - mangrove crab is a species which sells well; it can be caught when fishing trips to sea cannot be made because of bad weather or equipment breakdowns - may have contributed to overfishing of these crustaceans in the Nenema zone (1).

In the same way, shortage of manpower in the Nenema islands causes women to participate actively in commercial fishing expeditions. Most of the time this is by line fishing from a boat.

This sexual division of labour used to indirectly limit the number of fishermen, and at the same time ensured the simultaneous exploitation of both resources of the reef flat and those of the deeper waters of the lagoon. It is no longer maintained today, mainly because of the unequal monetary values of the different resources of the reef flat, the mangrove areas, and the lagoon.

Finally, access to certain places is completely prohibited, for reasons which are unconnected with fishing, but which nevertheless have an indirect influence on the way it is carried out.

A certain part of the shore may not be desecrated because it lies, for example, on the road used by the dead to travel to their underwater domain; access to other areas may be authorised, but only under certain conditions, - prohibitions on shouting, noisily playing around, running, etc - for similar kinds of reasons. In this way, these areas - which are not very numerous - form "reserves" that are avoided by fishermen

Regulations of catches

Social pressure exercises itself equally on the way the resource is exploited, from both quantitative and qualitative viewpoints.

- At the level of the quantities harvested, if the Nenema people did not manage their stocks in the modern sense of the term, they made sure nevertheless to avoid catches they were not able to consume. In a general sense, it seems that wastage, in terms of the amounts fished, was condemned.

The protection of certain species was also carried out in response to interference from outside. In this way certain fishermen from Yandé, fearing that the arrival of Europeans would result in too strong a fishing pressure on the stocks of fish usually found on their shores, are said to have used a "magic stone" in their possession to chase the fish away, and draw them to the outside of the barrier reef.

Incidentally, fishing conceived as a "sport" - i.e. for other purposes than providing food - is a concept which does not seem to appear. Incidents of overfishing are always associated with commercialisation, and with the few economic opportunities that exist (crabs in the North, lobsters in the South).

Certain fishing methods known to be destructive were not systematically used. This is the case with poison fishing - **kep, keva**. Used throughout the country, it does not seem to have been very much in favour among the Nenema people, although the fishermen still know the poisons used. One of the reasons put forward to explain this situation is the fear that currents spread the area affected by the poison too widely. However, since this technique has been banned by the Administration, it is possible that the small amount of information collected on this method from the Nenema people may be due to the fact that it has been out of use for a long time. In other areas, poison fishing seems to have been the object of local regulations: it needed, for example, the authorisation of the chief, who gave it only rarely, such as at times of famine, etc.

- At the qualitative level, putting to use traditional knowledge implied in general the preservation of fishing locations, in order to ensure the continued presence of fish, crustaceans, etc.

In the case of fishing for **shalaga**, the mangrove crab (*Scylla*), the technique involves taking care not to damage the animal's burrow - avoiding, for instance, digging another hole too close to the supposed end of the underground part of the burrow, even if this would allow more rapid access - as this leads to a risk that the burrow will not then be reoccupied by other crabs.

Finally, there exist rules which bear on the capture of certain species. They are applied for reasons that are not directly linked to the preservation of the species itself, but they work in this sense, especially in the present context of commercialisation.

There is the case, for example, in which marine animals have a special relationship with a given clan (**yamevwuk**). They are often species which, during a migration they undertake each year at a precise time and according to a known route, leave the zone that they occupy for the major part of the year in order to spawn outside the lagoon, during the course of the migration putting themselves along a shore that they only frequent briefly on that occasion, and subsequently returning to their original habitat. In Taanlô, we find in this way, associated

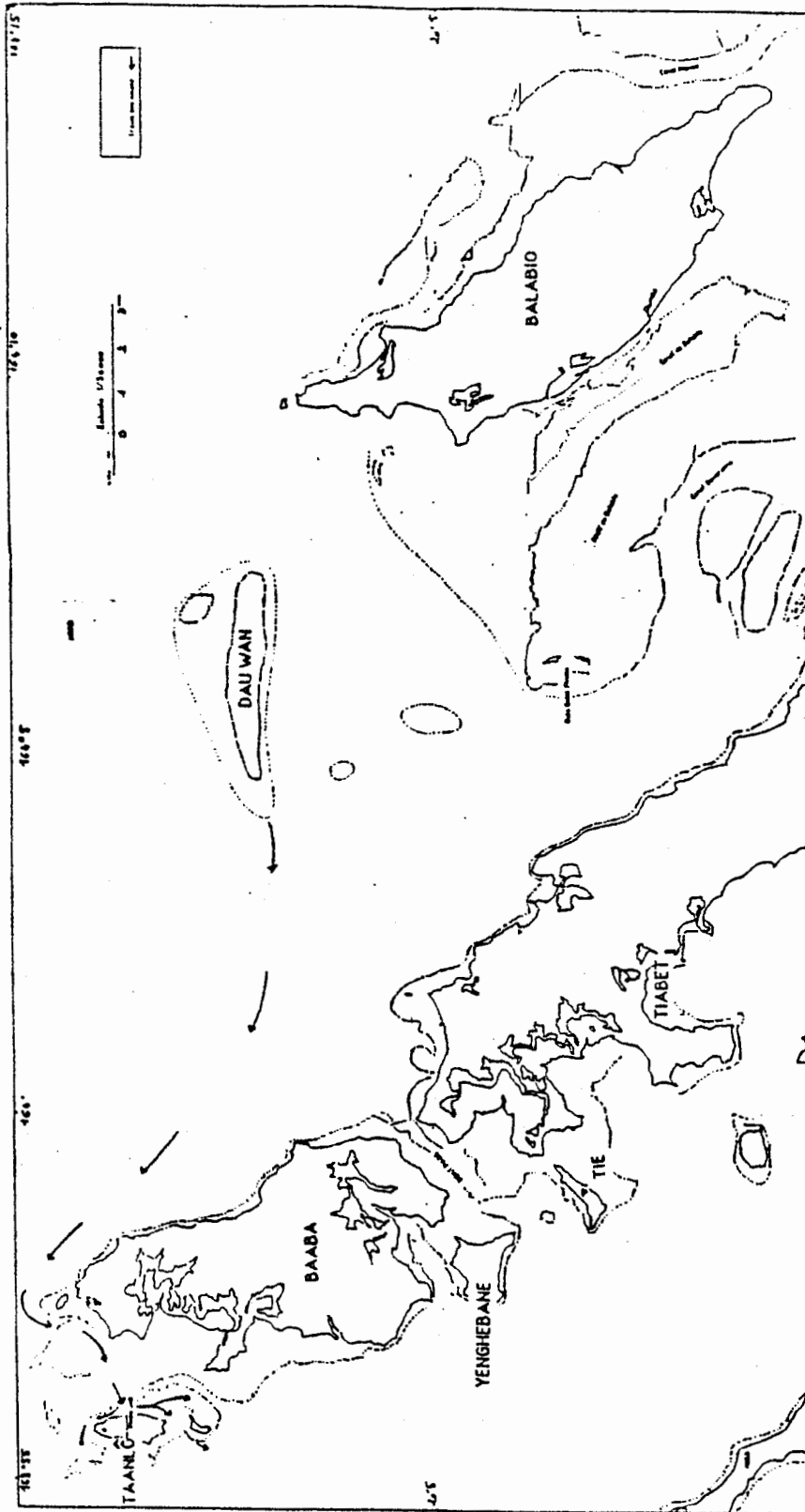


Figure 2: The path taken by the rabbitfish to Tāōno

with a particular clan, two species of fish - a rabbitfish, **aalat** (*Siganus* sp) and a trevally, literally "open-water fish", **nok daaleak** (f. *Carangidae*) - the first of which comes at the full moon in November, the second in March (see Figure 2) into a basin in the lagoon, the name of which refers to this event: **phwa-jep**, "the pass of schools of rabbitfish ready to spawn". (3) The arrival of the schools of rabbitfish has as its effect, according to the fishermen of Pouv, to draw other fish with them in their migration.

On Lifou, I have been told of a similar type of phenomenon with the milkfish *Chanos chanos*, which comes from the South-east of the mainland, and whose route should be seen as being related to the path (over many generations) of the women (no doubt of a certain clan) as they changed their place of residence on marrying. In a very schematic way, the presence of these fish is a manifestation of the ancestry of the clans founders, and they are the direct link between the ancestor of the clan and his descendants.

At present, the fish of Taanlô that are captured under these conditions - they may be encircled by a net but in the old days were not speared - are not destined for commercial use as a result of their sacred nature, and their capture is apparently reserved for members of this clan only.

Numerous clans have this type of particular relation to a species of fish or crustacean and the cases in which the animals concerned are used for commercial ends are extremely rare. We therefore find ourselves in the presence of a system of control for particular stocks which is closely linked to the kanak fishermen's perception of his world.

Other bans which appear to work a little differently also have a bearing on the capture of certain species, for example, the ban on catching turtles in Lifou. This animal is reserved for the chief, and may not be captured without his authorisation. It is obligatory for each turtle captured to be brought to him, which in itself often involves a complicated journey, to the point where the fishermen prefer to avoid seeking out turtles.

Finally, it is necessary to note a factor of a different type - since it is not linked to a cultural consideration but to an ecological problem - but which has always influenced the capture and the consumption of certain fish according to their species, their size, and the place and season of their being caught. This is the existence of ichthyosarcotoxism, or ciguatera poisoning, more commonly called "gratte". To catch gratte is called **shan**. The species that are avoided in the extreme north are:

phuru : under this term the Nenema fishermen distinguish in reality at least four lutjanids; *Lutjanus fulviflamma* (Forsskäll), *Lutjanus kasmira* (Forsskäll), *Lutjanus lineolatus* (Rüppell), locally called "daurade", and *Lutjanus quinquelineatus* (Bloch). These "daurades" are not eaten if they are fished from certain places (in the closed basin on the west coast of Yandé, and the one which lies between the island of Yowowé and Pouv, for example), although other fishes are. Otherwise, they can be eaten.

deee : under this name, the Nenema people distinguish several serranids, or coral trouts. The one which is not to be eaten is "black with white marks on the back. We find it inside and outside the big reef. We find it everywhere inside the big reef on the west coast and we do not eat it anywhere" It may be *Plectropoma melanoleucus* (Lacépède).

bwavu : *Plectorhynchus picus* (Cuvier); this pomadasyid is not eaten at Yandé from the time that the **wâaric** - *Semecarpus atra* (Vieil). - flowers and bears fruit, until the season when yams are planted.

In a general way, Nenema fishermen always avoid eating large fish "especially when they are fat. They have gratte when they are fat".

The cause of the phenomenon, for the old people, is that "these fish have eaten a soft grass, very soft, **dima**, which grows on the rock (=reef) at the bottom of the water and on the walls of rock". It grows everywhere, but, according to the old people, the current does not flow strongly in the basins. This grass, swallowed in the places where the water circulates badly, cause poisoning of the fish. Under the term **dima**, there are in fact two species of **dima**, both of which have the same name. Two local medicines - "false tobacco", called either (**Joon-**)**jaada** (*Abrus precatorius*), or (**Joon-**) **yaavac** (*Syzygium malaccense*) and **dalap** or "Erythrine poplar" (*Erythrina variegata* L. var. *fastigiata* Guill.) - are used to cure the gratte, the first by boiling its leaves, and the second pieces of grated bark.

Conclusion

The rudiments presented here play, to differing degrees, a role in the traditional management of marine resources by the Nenema fishermen. The question of knowing whether certain of these mechanisms should or should not be reinforced, and for what purpose, has not been treated here, because the aim is mainly to give a glimpse - not exhaustive - of the different levels at which such this could take place. The decision and choice of appropriate ways of carrying out such a reinforcement is left to the people involved, starting with the fishermen themselves. The traditional resource management mechanisms in the Nenema culture - and that of the Kanaks in general - do not fit our concepts of biological or economic optimum yields. They are nevertheless accepted and put into practice by the resource users. Only knowledge and understanding of this type of 'management' will permit resource managers to cooperate with the interested parties in developing the positive aspects within the framework of a modern management regime. Any such development, if it is to take place, cannot but underline the importance of the priceless local heritage, and should start from the structures put in place locally for that purpose (e.g the Nenema Cultural Office).