THE 'POTI MARARA' OR THE SUCCESS OF A SMALL FISHING-BOAT FITTED TO NEEDS

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Introduction

The rapid growth and urbanization of the urban area of Papeete, which today represents more than 60% of French Polynesia's population, has led to greater consumption of sea products, and to the growing over-exploitation of the lagoon resources of Tahiti. At the same time, higher incomes and favourable circumstances have allowed fishermen to increase their activities and to equip themselves to go to the open sea and catch fish that are no longer available near the shore. Circumstances are now less favourable and it is more and more difficult to pass an increase in cost of production on to already high sales prices. Fishermen are more numerous and, with more competition, improve the power of their boats in order to arrive at fishing grounds first and to be the first at the markets to set fish at optimal prices.

The evolution of fishing boats and the search for a multipurpose boat

The evolution of fishing boats

Such is the territorial background of boat-building that, like fishing, it remains an artisan's activity. About one hundred people are involved in a commercial boat-building operation and annual production amounts to a thousand boats for fishing, transportation or leisure activities. Half consist of wood or plywood boats which are made by individual non-specialized builders in rural areas. Most are canoes designed for fishing inside the lagoon or near the reef. In accordance with tradition, they are made of local wood species like uru or breadfruit, vi or mango tree, mara or *Nauclea foresteri*, and purau or *Hibiscus titiaceus*. Gradually they are being replaced by plywood canoes which are lighter, cheaper and easier to handle and which can go faster and farther if they are fitted out with small outboard motors which compensate for their lower hydrodynamism.

The other half consists of speedboats which, during the sixties, replace large sail canoes and, like them, are designed for fishing outside the lagoon. Most of them are made in the urban area of Papeete by professional builders; the older ones still use wood or plywood, whereas the younger ones experiment with new materials like aluminum or fibreglass.

The smaller boats are called speedboats and stem from standard models used for leisure in the United States in the fifties. They are four to five metres long and have a streamlined bow and a rectangular stern. They are generally semi-decked and made of pine ribs covered with plywood, but their dimensions and features vary from owner to owner. Outboard motors with which they are fitted are of 20 to 50hp.

Bigger boats, called 'bonitiers', are designed for bonito catching and are more uniform. They are ten metres long and, since the fifties, have formed a flotilla, going offshore and catching tuna fish each day by means of canes and mother of pearl, or synthetic baits. They are made of wood and have a crew of three or four fishermen. They do not generally go out more than 60 nautical miles from their place of departure, usually Papeete harbour. At the beginning of the eighties, their average length of service was eight years and their motor power was about 225hp. Despite rising building and operating costs, their dimensions are increasing and the power of motors propelling them now exceeds 300hp.

Table 1
Evolution of main features of 'bonitiers' (1964-85)

Mean features	1964	1971	1978	1985
length(m)	9	9.3	11.4	12
width(m)	2.65	2.75	2.8	2.95
tonnage(t)	7.5	8.9	9.5	9.8
horsepower	75	205	230	290
number of units built	14	15	8	15
total of active units	34	89	116	105

The search for a multi-purpose fishing boat

Administrative authorities do their best to direct fishing activities by regulations. For a long time, they have been attempting to promote an industrial way of fishing, based on more efficient methods and techniques. With this objective in mind, they encouraged the building of medium-sized vessels which are able to bring about a gradual industrialization of fishing.

As early as 1961, commissioned experts suggested that a twelve metre long boat, equipped for pole and line fishing and fitted out with fish-tanks, be built. It was to be propelled by a 100hp motor and be able to stay about ten days on fishing grounds with a crew of four people. The project did not come into being but, in 1968 another study recommended that a 17.5m long vessel fitted out with a 160hp motor be built. Its main function would be to experiment with different sorts of fishing and to assess potential fish stocks. That recommendation did not prove effective either, but it did induce some private attempts to diversify fishing in high seas. With the help of territorial authorities, a 16m long Hawaiian sampan was launched in 1969 to experiment in fishing with live bait, using pole and line of traditional Tahitian cane. In the following year, a 13m long, 300hp powered 'bonitier' was launched and equipped for pole and line fishing. In 1972, with no more success, another 'bonitier' and an 18m long Japanese sampan were converted for fishing with live bait.

Three years later, the Territorial Fishing Service and the Centre National d'Exploitation des Oceans (CNEXO) formed a partnership to experiment with the possibility of a commercial way of fishing with live bait, and purchased a second-hand 25m long trawler. Following the same path, a program of building 16m long, 450hp motor propelled 'superbonitiers' was implemented in 1978. They were intended to go 100 nautical miles away from the coastline and stay one week at sea with a crew of five people. But difficulties arose in putting them into practice, and in 1984 a new program of multi-purpose fibreglass 'bonitiers' was set up. It was aimed to replace, at least partially, traditional wood-made 'bonitiers' which were becoming less and less profitable. After a good deal of trial and error, which increases its cost, the first 13.30m long specimen was launched in 1985. It was fitted with a 306hp motor and was equipped to fish with cane pole and line as well as with net, pole and line and live bait. But, due to its cost, weight and lack of power, it was not as successful as expected and the program was postponed.

The growing success of the 'poti marara'

While official attempts to establish a multi-purpose vessel able to stimulate fishing activities experienced setbacks and were finally doomed to failure, a small boat called 'poti marara' came to the fore. Without any external assistance, it has been gradually adapted by local fishermen to the needs of a multi-purpose way of fishing.

'Poti marara' is a modified speedboat and has been used in the Windward Islands to catch flying fish. It is a small craft, and is easy to handle. It has a cabin in the front half of the boat where the fisherman, who is also the driver, stays. Marara or flying fish catching is practised during the night inside the lagoon or near the reef. The fisherman drives with one hand and in the other holds a landing net with which he catches flying fish. In order to see and attract them, he has a helmet equipped with a powerful electric light, run by a small generator inside the boat.

The first 'poti marara' made their appearance in the fifties. They were propelled by ten or less horsepower motors and had two men onboard, the driver and a fisherman with a landing net. At the beginning of the sixties, one fisherman decided to fit out the boat with a joystick, which allowed the fisherman to drive. This innovation rapidly spread and gave rise to a 12/13 foot long craft; it was a flat bottomed boat equipped with a 10/15hp motor and cockpit in the front of the boat. As catches were becoming scarce inside the lagoon, pressure of competition generated a concomitant growth in the power and size of 'poti marara'. Motors increased in power from 35/40hp at the end of the sixties to 60/85hp ten years later and the length of the boat increased to 4.50m.

In 1978 a new trend took place: the average craft reached 18/19 feet and its shape slightly changed. The V-profile of the keel was accentuated to enable the boat to perform better in the open sea, and the prow was sharpened to allow it to spring out of the water. These changes can be explained by the redirection of fishing activity towards mahi mahi or *Coryphaena hippurus* which were harpooned after a track-race in high seas before being sold to hotels or supermarkets.

There are now two types of 'poti marara': one is 14/15 feet long and well suited to marara catching inside the lagoon, the other is 17/18 feet long and can be used in rough seas. In 1984, in accordance with official fishing regulations, and because of a rise in the price of fuel, fishermen turned towards an intermediate craft propelled by a 50/55hp motor which enabled them to fish marara and mahi mahi as well as bonito or *Pristipomoides*. But this shift did not last and in 1986 an extension of territorial aid induced greater competition in the power of motors. Motors now range from 85 to 100hp and crafts are used more and more in a multi-purpose way to fish *Exocoetidae spp, Coryphaena hippurus, Katsuwonus pelamis,* tuna, *Etelis or Pristipo moides.*

Table II
Building and Locating of 'poti marara' (1985/86)

builders (1985)			Localization	
builders' quality	number	built units	Windward Islands	210
professional	9	55	Leeward Islands	70
non-professional	5	15	other Islands	10
total	14	70	total	290

The significance and consequences of this success

A spontaneous evolution

There is a striking contract between cost and the ineffectiveness of steps taken by administrators, and the cheapness and suitability of those taken by fishermen. Gradually 'poti marara' were adapted to multi-purpose fishing outside the lagoon. It is a good example of a small-scale successful adaptation to circumstances and, today, it competes with 'bonitiers' and has about the same catching capacity, a much lower building cost (27,500 francs instead of 275,000 francs in 1985) and cheaper operating costs.

Its success is not difficult to explain. 'Poti marara', like speedboats, are small, easy to build and to modify. An Arue fisherman and builder has turned out to be a reference but it is due to his professional skill and to the good quality/price relationship of his products. Half the 'poti marara' registered at the 'Service de la navigation et des Affaires Maritimes' in 1986 had his label. His basic model is 5.40m long, 1.10m deep and a little less than 2.00m wide. Users adapt this to their own personal needs. Apart from a similar appearance every boat differs in dimensions, the position of the motor or in hull shape. This is probably the reason why, the original, which is relatively short, flat bottomed and designed to stay inside the lagoon, has led to the development of another model which is longer, faster, more stable and with a more accentuated V-shape.

The purpose of multi-purpose vessels that administrators try to promote is, on the one hand, to rationalize fishing and, with this in mind, to develop a craft able to reach these objectives. 'Bonitier' is technically a success and, for more than forty years, has proven its ability, but it is no longer adapted to modern constraints (farther resources, growing competition and climbing costs). When they want to introduce a new vessel, administrative authorities need to resolve less a technical than a human problem. What is required is to modify fishing habits and to persuade fishermen to change their way of working and living and encourage them to stay onboard several days at a time.

To a great extent, such an evolution is sought without dialogue or agreement amongst those concerned. Its implementation is hampered by bureaucratic management which is often not consistent with other measures taken to promote fishing activities. One report has already observed that in 1972, at the same time that a substitute for traditional 'bonitier' was wanted, financial opportunities were given to small local builders enabling them to reinforce the 'bonitier' flotilla. Such a policy has not only encouraged a race towards more powerful and superfluous equipment, but it has been accompanied by fewer boats being produced. In a way, the present policy which subsidizes fuel consumption and the acquisition of fishing gear, plays the same role. Aid allocation is itself subordinated to the observance of extending rules, resulting in new problems often unrelated to the local situation.

A growing supervision

Since 1977 'bonitiers' must be registered and new legislation imposed building regulations, navigation rules and security measures. The regulation of 'poti marara' was only implemented in 1986 and has been worked out at the instigation of fishermen. When they began to go outside the lagoon and to extend their area of investigations, they found themselves in breach of legislation which did not allow them to go beyond five nautical miles from the shoreline, and did not enable them to enjoy the same advantages at bonito fishermen (building subsidies, reduced prices for equipment or discounts on fuel tariffs).

This is one of the reasons why a lagoon and coastal fishermen's union was created in 1982. Its action soon led to the institutionalization of activities of 'poti marara'. Assuming they were registered and compiled with safety measures, they were allowed to go 15 nautical miles from the coastline. At the same time fishermen gained access to assistance, such as a 30 centimes rebate per litre of fuel, a half-price subsidy for boat hulls, compulsory safety equipment and initial fishing gear.

This generated acrimony among bonito fishermen who not only had to compete with each other but had to face fishermen with faster and cheaper crafts and a very similar catching capacity. Conflicts broke out in the vicinity of fish aggregating devices (FADs) set up around Tahiti and on more distant fishing grounds. While 'bonitiers' were used to carefully approach the schools of fish they tried to catch, 'poti marara', because of their greater mobility, did not care about disturbing and scattering the fish by alternatively engaging and disengaging the clutch of their engines. However, *modus vivendi* gradually emerged, giving 'bonitiers' a priority for bonito fishing and reserving the less distant FADs to 'poti marara' and the more distant ones to 'bonitiers'.

Now benefiting from official assistance, 'poti marara' saw their success ensured over the next years. The fact they were encouraged after having been neglected for many years attests to a more pragmatic and better adapted policy. However, their assistance, as well as their regulation, must not constrain their

dynamism and, in turn, place them in a dependent position. It must be a prelude to an effective dialogue, arising from a better understanding of fishing habits and mentalities and bring about a more coherent and realistic assessment of fishing and related activities.

References

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