

## Editorial

After an experimental phase, the cultivation of pearl oyster has increased in French Polynesia since the seventies. It has remained quite limited until the eighties. Then the well-known reputation of the black cultivated pearl of Tahiti boosted the production. A high price associated with self-production in natural settlement allowed a fast but uncontrolled increase of pearl production. On 34 atolls, more than a thousand farms cultivate the pearl oysters (*Pinctada margaritifera*), which contributed to a stable and durable development of Polynesia. Since 1983, the pearl market has reached in value the first rank of exportation in that country. It is the second revenue after tourism. Its turnover rose to 1.230 billion of French Francs in 1999. Thus, the cultivation of that species is now, in value, the second French aquaculture production behind the cupped oyster *Crassostrea gigas*, but leading mussel culture and all the other aquacultures (fish, shrimp, etc.). This development was associated with different problems, among which various mortality crises associated or not to pathogenic causes. In particular, massive mortalities occurred in Takapoto Atoll, in areas where breeding densities had intensively increased. To help the development of this new culture, a national research programme has been founded by the French minister of research, the minister of overseas territories, the government of Polynesia and the European community. This multi-disciplinary programme, the General Pearl Oyster Research Programme (PRGN), was worked out in two phases: 1989–1993, then 1995–1999. This programme brought together different local research organisms or universities (SRM, IRD, IFREMER, UPF, EPHE) and other mother-country institutes (IFREMER, CNRS, ENSAR, OIKOS).

The objective of the first phase was to start and develop the general basic knowledge on the pearl oyster, its trophic competitor, and ecosystems characteristics.

The second phase focused on these studies:

– models of the carrying capacity of the Takapoto Atoll, which has been chosen as a workshop zone,

– network in the different atolls to study growth rate, mortality and pathogeny surveys, adaptation and modifications of breeding techniques,

– socio-economical studies of the pearl sector.

All the results have been presented in a workshop in Papeete in October 1999, with scientific and professional sessions in “*l’Écho de la nacre, Te-reko parau*”.

A selection of the main biological results is presented in this special issue. The main result found in these studies is that primary, as well as paraprimary production of Takapoto Atoll allowed to support a high trophic capacity for the black lips pearl oyster. But local overcrowding occasionally occurred, causing a decrease of the growth rate, and inducing mortalities. Recommendations have been given to maintain minimal distances between the cultivation installations. These studies have been achieved on one atoll and they must be done in other lagoons with different hydrodynamical and biological characteristics.

The occurrence of some potentially pathogenic agents needs to be watched and the survey of the different atolls has to be increased; in order to limit the transfer of oysters (mainly spat) from one atoll to another, each location must be self-sufficient or hatcheries must be created.

On a more general point of view, the permanent development of the production brings about a decrease of the mean price per gram of pearl, and only a policy that develops the quality, will allow to keep the luxurious image of the black pearl and enable to maintain the companies’ profits.

*For the directory committee of the programme constituted by Jean-Pierre Fourcade (pearl oyster farmer), Maurice Héral (biologist) and Jean-Pierre Boude (economist),*

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