## Giant clams: a resource to preserve

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Tridacna maxima is the smallest species of giant clam and the most sough-after in aquariophilia because of the bright colours of its mantle. © IRD/S. Andréfouët

In New Caledonia, as in many Pacific countries, giant clams are a highly sought-after resource. Their exploitation can threaten their availability and even lead to their disappearance. For instance, *Tridacna gigas*, the largest species, once present on the reefs of New Caledonia, is now only found in fossil form. According to the official statistics of the New Caledonian Fisheries Observatory, the official annual catch figures, recorded between 2000 and 2014, are significant and reach up to 9 tons/year for all species. Since 2009, protective measures have been implemented to stop the observed decline in stocks. For example, the fishing of giant clams is regulated in both the northern (article 341-54 of the Environmental Code) and southern (Article 37 of the Environmental Code) provinces: catches are limited to two giant clams per boat and per day for nonprofessional fishing (recreational and subsistence) and five giant clams per boat and per day for professional fishing.

In the Province of the Loyalty Islands, Kanak customary law alone regulates giant clam fishing, no other legislation applies. The absence of statistical data at the species level, however, is currently preventing the accurate assessment of catch rates per species. This is even more true in the case of undeclared subsistence fisheries, where impacts on the resource are not quantified at all. Despite a positive effect (a decrease in catches) since the introduction of these regulations, available data suggest that the densities of giant clams continue to decrease due to increases in fishing pressure linked to the demographic development of the territory.



*Tridacna gigas* is present throughout the coral triangle as far as the Solomon Islands, but has disappeared from the reefs and lagoons of New Caledonia where fossil shell valves are much sought-after by lapidaries. © IRD/S. Andréfouët

Confronted with the alarming state of the resource and the desire of local communities to keep on consuming giant clams, managers, scientists and local stakeholders must, more than ever, join forces to find innovative solutions. In September 2009, WWF and the Fisheries and Aquaculture Department of the North Province coordinated a restocking operation of the Horse's hoof giant clam, *Hippopus hippopus*, in the two co-managed Marine Protected Areas (MPAs) of Pouébo and Hienghène. In 2012, a genetic study carried out in the Hyabé/LéJao (Pouebo) MPA evaluated the effectiveness of this

## References

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restocking process and estimated the dispersion range of larvae around the MPA. Coordinated by the IRD, this work revealed that 22% of the giant clams sampled inside the MPA originated from the reproduction of MPA individuals, revealing a high rate of selfrecruitment. The study also showed that about a quarter of these "self-recruits" were born from at least one parent issued from the restocking operation, thus proving the effectiveness of this action.

For larval export, the results show that 18% of juveniles sampled on fringing reefs on each side of the MPA are the result of the reproduction of adults located in the MPA, up to about 35 km apart. Re-seeded specimens also participated in exports, with a share of around 30%. Therefore, Horse's hoof giant clam larvae from protected areas, where fishing is regulated, are exported and contribute to the resilience of populations in unprotected areas, emphasizing the importance of these marine protected areas.

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