



The CRISP programme is implemented as part of the policy developed by the Secretariat of the Pacific Regional Environment Programme for a contribution to conservation and sustainable development of coral reefs in the Pacific

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## CASE STUDY

# Development of economically viable Postlarval Capture and Culture (PCC) based activities in Bora-Bora (French Polynesia)

### What is PCC?

PCC stands for Postlarval Capture and Culture (or "grow-out"). Postlarvae are a development stage in reef fish and crustaceans prior to both settlement in the lagoon and adulthood. The vast majority of animals start their development cycle with an ocean phase lasting one to three months, after which fish and crustaceans re-enter the lagoon in their hundreds of millions. Only approximately one in a million individuals will reach their adult stage, with most juveniles being eaten by predators. Using innovative techniques (such as crest nets or light -traps - see photos below), postlarvae can be captured and bred for sale to three potential markets: **aquaculture** for food purposes; **restocking** into ecosystems to boost biodiversity and fish density for fishing purposes or simply for **ecotourism** such as snorkelling in coral gardens; and the (lucrative) **aquarium**

**market.** Despite their impressive numbers, the captured animals only account for a very small portion of the larval flow, hence the very slight impact on the ecosystem compared to techniques involving the capture of adults with large quantities of breeding individuals. This makes PCC a potentially **ecofriendly industry.**

For more information on PCC ecological effects see: BELL, J. D., CLUA, E., DOHERTY, P., GALZIN, R. and C. A. HAIR (2009). «The capture and culture of postlarval fish and invertebrates for the marine ornamental trade». Reviews in Fisheries Science, Vol. 17 (2): 223-228.





ACTIVITY 1:

EXPORTATION OF POSTLARVAE OF HIGH VALUE SPECIES FOR THE AQUARIUM TRADE MARKET

PARTNER #1:

BoraEcoFish (BEF) is a french company based in Bora-Bora island (French Polynesia), owned by François Chevallier, who currently employs 3 people. BEF is currently developing a threefold strategy for selling postlarvae products based on contracts with international ornamental wholesalers, local high standard hotels and gourmet restaurants.



and will receive new PCC technology and perform capacity building. Partner #2 already owns a fish farm in Hawaii that will undergo extensive modifications in order to be optimal to rear post-larvae on a large scale. After best site selection, various post-larval fishing gears will be tested to determine which is most efficient for the chosen site and, finally, estimate the profitability of PCC depending on species collection. The project will test export to Hawaii and then to the wider retail market.

A joint-venture between BoraEcoFish and HawaiianSeaLife supported by the CRISP programme

This project is a partnership between the biggest marine ornamental wholesalers in Hawaii and a French Polynesian company specialized in PCC, in order to demonstrate that sustainable PCC-reared fishes are a feasible alternative to wild-caught fishes to supply the American and Asian ornamental fish markets. The project will take place in Bora Bora and Marquesas, where partner #1 already has extensive experience of PCC

PARTNER #2:

Hawaiin Sealife is a US company based in Hawaii (US territories), owned by Richard Xié, one of he biggest marine ornamental wholesalers who aims to promote PCC products.







## ACTIVITY 2:

# USE OF POSTLARVAE AND CORAL GARDENS FOR ECOTOURISM-BASED ACTIVITIES

Le MERIDIEN

### PARTNER #3 and 4:

The Thalasso-Intercontinental and the Méridien are two high standard hotels located in Bora-Bora island. These hotels are promoting ecofriendly practices and coral reef knowledge to their customers, in particular by developing coral gardens that are maintained by BEF, which implements coral restoration, fish reseeding and on-farm visits for tourists.

The Thalasso-Intercontinental is on the verge of being internationally recognized with the «Green Globe ecocertificate». A process supported by the CRISP programme was launched early in 2009 by a local association, Te Mana O Te Moana, to allow the inclusion of marine-based standards in the GG ecocertificate.



Intercontinental Thalasso Bora Bora



From left to right: Sylvio BION (Director of Thalasso), Mathieu PETIT (Te Mana O Te Moana association), Anne-Catherine IMHOFF (Intercontinental Papeete) and Eric CLUA (CRISP manager).



ACTIVITY 3:

RAISING AND GROWTH OF MANTA SHRIMP POSTLARVAE FOR THE RESTAURANT MARKET

The Manta Shrimp (MS) is a luxury food in French Polynesia where the demand is never met by the supply. So far, MS are caught in the wild by fishers who sell the crustacean for up to 300 US\$/kg. Postlarvae of MS are regularly trapped in small mesh nets and can be raised up to the commercial size (around 20 cm).

BoraEcoFish staff Corantine FAVRE manipulating an adult MS for technical monitoring purpose.



Two MS species are presently studied in BoraEcoFish facility, *Lysiososquillina maculata* and *L. sulcata*, the former one being more appreciated by gourmets. These two species of MS are caught at 1.5 and 2 cm respectively and must be raised in PVC pipes which replace their natural burrows in soft lagoon substrates. The aquaculture of MS requires a solid technical know-how but is an interesting complementary income generating activity.

Photos courtesy of Eric CLUA (CRISP)