

# Post-larval Capture and Culture (PCC) : an innovative technology for the sustainable use of marine resources

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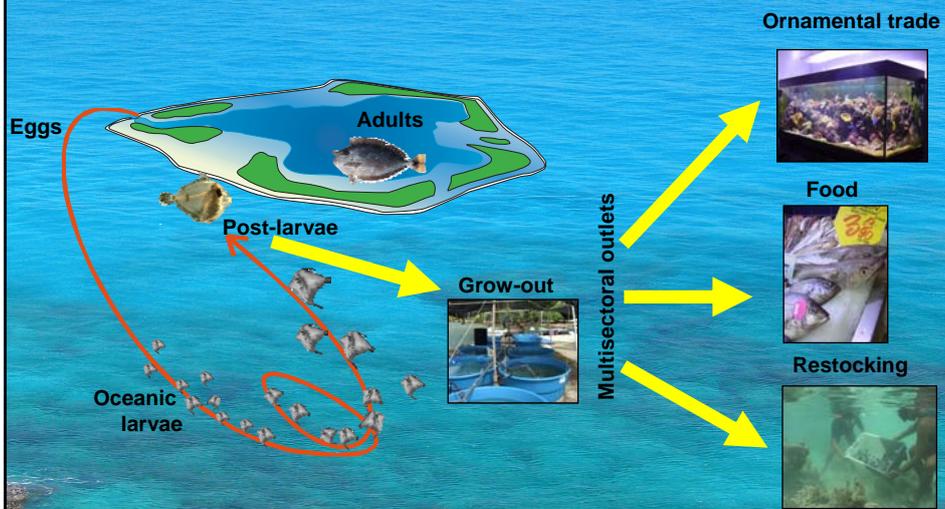
16 CSD- SIDS Partnership : implementation of new technologies for  
sustainable development in SIDS

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Sponsored by the Moana Initiative NGO ([www.moanainitiative.org](http://www.moanainitiative.org))



The concept is based on the biological life cycle of the majority of marine animals (*mainly coastal fish and crustaceans*) where more than 95% of colonizing post-larvae disappear within a week of reef settlement.  
(Doherty et al, 2004 ; Planes et al, 2002 ; Planes et Lecaillon, 2001)



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## At the confluence of **fishing** and aquaculture

A variety of existing collection gears are suitable for use in PCC, such as :  
Crest Nets, Hoa Nets, Light Traps, CARE © and SAFE ©

- ⊗ Fisherfolk are totally involved in the PCC process
- ⊗ Small wooden or traditionally-made boats are ideal
- ⊗ Capacity building is fast and easy, as PCC is a fishing-based activity!



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## At the confluence of fishing and **aquaculture**

- ⊗ Multi-species aquaculture with no hatchery required
- ⊗ Manual sorting, easy weaning and rapid rearing => PCC's 3 major steps to delivery of saleable fish



Sorting



Weaning



Rearing (rabbitfishes)

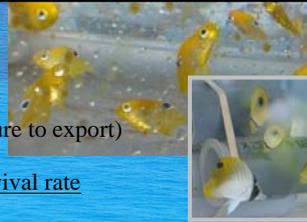
A DVD (French with English subtitles) is available detailing fishing, sorting, weaning and rearing steps

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## Multi-sectoral approaches

### ⇒ **Aquarioculture** => marine aquarium fish production

- ⊗ Already tested in various seas and sea conditions (from capture to export)
- ⊗ Healthy, tank-raised animals (mainly fishes) with a high survival rate
- ⊗ Enables profound and far-reaching changes within the MAT, greening the market



### ⇒ **Aquaculture** = tropical food fish production

- ⊗ Multi-species artisanal aquaculture : (rabbitfishes, snappers, groupers, jacks, etc.)
- ⊗ Alternative and sustainable livelihood for local community
- ⊗ Ciguatoxin-free



⇒ +12 months

From PL .....to eatable size



### ⇒ **Restocking** = associated with habitat restoration (eg Biorock)

- ⊗ 3 types : heritage, halieutic and ecotouristic
- ⊗ Closest approach to natural environment using multi-species stock enhancement
- ⊗ Healthy gene pool, plus no introduction of genetic aliens



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## A responsible practice ?

More than 95% of post-larvae mortality takes place within a week of reef settlement (*numerous scientific references*). Thus, capturing a small % of PL before settlement :

=> has a negligible impact on future fish stocks, as we only capture a small % of post-larvae (and never juveniles or adults) from amongst a huge number of incoming PL.

=> has no impact on habitat (no chemicals used in capture of post-larvae, floating traps far from the reef)

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PCC is supported by UNESCO within the Man And Biosphere programme



PCC is supported by the Reef Check foundation



PCC is certified "good practice" by the International Coral Reef Initiative



...and many leading scientists and NGOs support PCC



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## Conclusions and perspectives

### for sustainable valorization of marine resources

- ⇒ Ecotouristic restocking : artificial “coral garden” (coral + fish) for overwater resort  
=> green image, nice front reef etc
- ⇒ Halieutic restocking : to boost ecosystem resilience (> survival rate, fish attract fish)
- ⇒ Increase the % of tank-raised marine animal into the unsustainable MAT
- ⇒ Offer an artisanal aquaculture : food is a priority for Small Island communities

### for marine biodiversity conservation

- ⇒ Improving knowledge (connectivity between fragmented habitats, species abundance, etc.)
- ⇒ Bio indicator of biodiversity richness, invasive species and halieutic stock prediction
- ⇒ Restauration of marine “Heritage” in degraded areas

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## Lessons learned, recommendations and **key messages:**

- The economic evaluation of ornamental or food fish markets - and of recreational or halieutic restocking - are ongoing and depend on the country of origin ; but the previous analysis/experiences obtained in developing countries showed encouraging results (multi application).
- Diffusion of these innovative technique is feasible but requires the participation of Government agencies, scientists, local communities (fishermen), the marine aquarium trade and off course consumers (tourists or aquarists).
- The non-profitable initial training (capacity building) and heritage restocking components must be funded through EU or US (or both) public RTD programs.

**⇒ PCC can offer a sustainable alternative instead of sustainable restriction (such as quotas, MPAs etc), so it will facilitate coastal populations to continue to live closely and sustainably with their natural marine environments**

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**Post Larvae Capture and Culture Facility Management Guide**  
for the Maldives, Tahiti, and the Philippines

**La PCC\***  
Un outil pour la Conservation et la Valorisation de la Biodiversité

**CRISP**  
Guide d'identification des larves de poissons de récif de Polynésie française

... existing brochure/tools for PCC capacity building available on request

**CRISP**  
Jeunes poissons coralliens de Wallis et du Pacifique central  
**Ifremer**  
Young coral reef fish of Wallis Islands and the Central Pacific  
IDENTIFICATION GUIDE  
Matthieu Juncker

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**MULTISPECIES REARING KEY FOR PCC**

II- Compatibility paths among groups Arrival < PL < 1<sup>st</sup> month