

### Juvenile lobster collection and grow-out for the food market in New Caledonia – a reality!

*A number of countries, including Vietnam, the Philippines and Indonesia, have long practiced the collection and grow-out of spiny lobster (*Panulirus ornatus*) post-larvae (pueruli) for food. Following in their footsteps, New Caledonia's provincial fisheries officers, in close collaboration with the territory's Agency for Economic Development (ADECAL) and SPC's Aquaculture Section, initiated lobster collection and grow-out trials in selected New Caledonian coastal locations in 2009. The first collection trials were carried out during 2010 in Ouano Bay, a well-known lobster settlement area, and yielded very promising initial results.<sup>1</sup>*

During the 2011 collecting season (March to September), six collection sites were tested. The testing involved a total of eight groups of local fishers as well as the participation of adjacent coastal communities. Four of the sites were located in the Northern Province and two of them in the Southern Province. The fishers involved collected a total of 2137 pueruli, with extremely high collection rates in some settlement sites. At La Foa, for example, collection rates were 20 times higher than typical rates in other regions of the world (e.g. Vietnam or Indonesia). These trials also demonstrated that the lobster collection season in the New Caledonian lagoon is two months longer than in other Pacific and Asian countries.

#### Initial grow-out experiments and collection methods

“The Aquaculture Society of Ouano” (SAO), a local company based in Ouano Bay and managed by Nadine Sephar, has been in charge of the grow-out experiments. ADECAL, SPC and provincial officers from both provinces have provided the required technical support. The 2137 collected juveniles were stocked in 11 (0.3 m<sup>3</sup>) submerged cages during the nursery phase (3 months), after which the survivors were transferred to six traditional floating cages (3 x 3 x 3 m or 27 m<sup>3</sup> volume) installed at

SAO in Ouano Bay. The animals currently weigh an average 200 g, and the company is expecting them to reach the 400 g commercial size in another three months (for a total rearing period of 12–16 months).

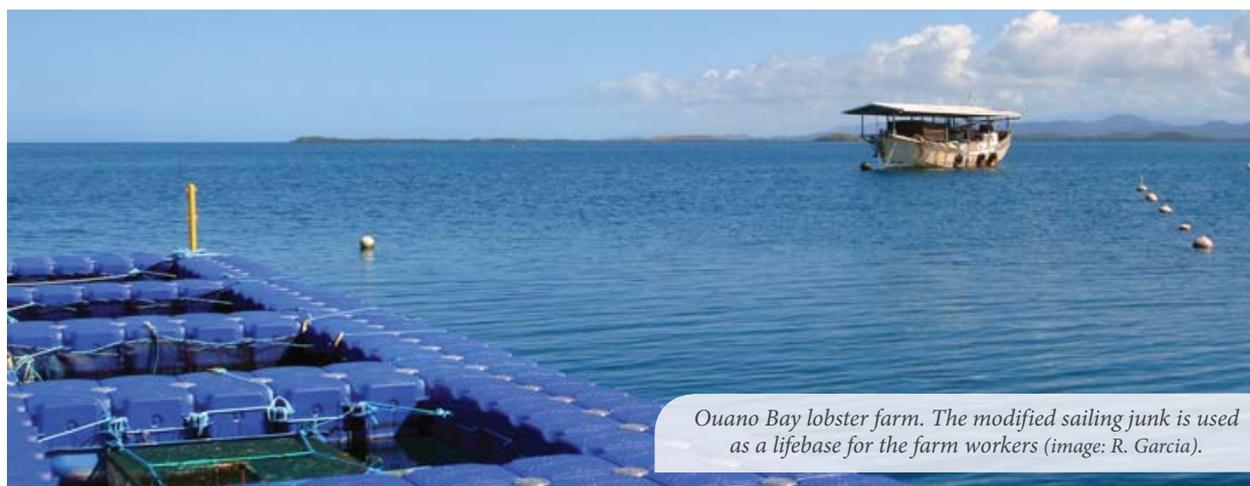
Nadine Sephar has been in charge of the monitoring of a series of different grow-out trials. Most focused on the comparison of different feeding strategies, stocking densities and farming systems on the growth of the animals, to develop a set of better management practices to be used in future aquaculture settings.

Some of the problems encountered during the grow-out phase have been related to:

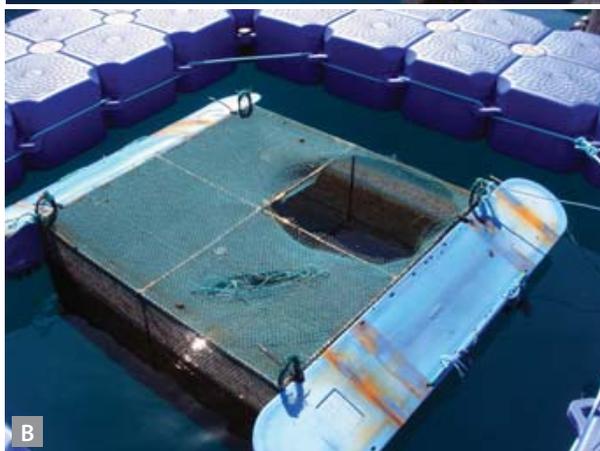
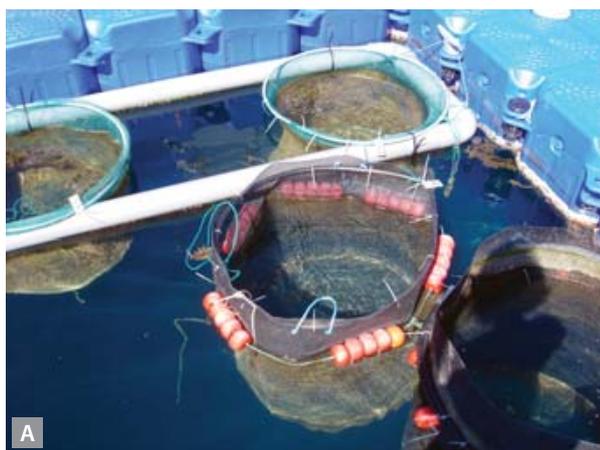
- availability of suitable feeds (i.e., feeds with a high protein content are required during the first 2–3 months);
- maintenance of proper stocking densities; and
- periodic grading of the animals inside the cages to control cannibalism (i.e., slightly larger animals will often eat smaller ones).

The average survival rate of the first round of trials has been around 25%, quite low when compared with other regions (e.g. 40–50% in average in Indonesia and the Philippines).

<sup>1</sup> See article by Antoine Teitelbaum in issue #134 of this newsletter: ([http://www.spc.int/DigitalLibrary/Doc/FAME/InfoBull/FishNews/134/FishNews134\\_20\\_Teitelbaum.pdf](http://www.spc.int/DigitalLibrary/Doc/FAME/InfoBull/FishNews/134/FishNews134_20_Teitelbaum.pdf)).



Ouano Bay lobster farm. The modified sailing junk is used as a lifebase for the farm workers (image: R. Garcia).



A & B: Cages used for the nursery phase (3 months);  
C: Hauling the net of a grow-out cage where lobsters  
are kept for 12–13 months (images: R. Garcia).

During the first year of juvenile collection, most fishers switched from the classical “onion bag” collectors, which are used in other regions of the world, to the so-called “wooden stick” method (see footnote 1). The latter involves placing pieces of drilled wood or bamboo into the water for the juveniles to use as shelter. In New Caledonia, wooden sticks were shown to have higher recruitment rates (3.5 times more recruitment than traditional “onion bags”). According to fishers involved in collection, initial recruitment may take longer when using new wooden sticks, because the process of “biofouling”

(i.e., accumulation of algae and other natural matter) is slower than with onion bags. However, once a thin algae layer covers the wooden sticks, recruitment rates seem to be much higher. Moreover, fishers say that the sticks are easier to deploy, monitor and clean (they require less manipulation time), and that they last longer. They are also made of locally available materials.

### SPC involvement

As part of the SPC–New Caledonia joint country strategy, SPC’s Aquaculture Section has facilitated the exchange of information and experiences between the Lombok Mariculture Centre, in Indonesia, and the New Caledonia fishers and farmers involved in lobster collection and production. A hands-on training and knowledge transfer between the Lombok Mariculture Centre and the New Caledonian stakeholders is planned for the first week of December in Lombok, with the aim of meeting some of the current knowledge needs.

### Conclusions and future plans

This first year of juvenile lobster collection and grow-out has allowed local fishers to identify the most suitable collection sites and the most efficient, locally-adapted, and environmentally-friendly collection devices. With regard to farming systems, the first trials have shown that stocking densities should be established by cage surface and not by cage volume. Furthermore, adequate feeding strategies and regular grading of caged animals are key factors to a successful grow-out operation.

Current plans for the Ouano facility for the remainder of 2012 include the testing of eight new collection sites (including two new sites located in the Loyalty Islands). Grow-out trials will continue, taking into account lessons learnt on farming strategies and high protein feeds. Growth and feed conversion efficiency results will then be compared to those obtained from earlier experiments.

#### For more information:

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