

**AQUACULTURE SECTION**

**Promising spat collection trials in New Caledonia**

There are times when one needs to listen to nature to seek the fantastic opportunities it can offer. Aquaculture that is based on spat collection is one of these. At certain times, millions of free-swimming pelagic shellfish larvae float within the water column, seeking a substrate to settle on. By submersing spat collectors at the right time and place, an unlimited supply of bivalve spat can be harvested and then grown to commercial size. Motivated by the New Caledonian development agency ADE-CAL and the willingness of local entrepreneurs, SPC's Aquaculture Section, together with a team of divers, has been undertaking a spat collection campaign targeting tropical scallops in New Caledonia's lagoon.



Recently set spat collectors (Image: Sandrine Job).

New Caledonia has diverse tropical scallop resources that could be harvested commercially given their various size ranges. Two species in particular — *Mimachlamys gloriosa* and *Bractechlamys vexillum* — can be collected in great quantities using spat collection techniques. *M. gloriosa* and *B. vexillum* are

the most common scallop species found in New Caledonia's lagoon. *B. vexillum* is a mobile species that lives exclusively on soft-bottoms while *M. gloriosa* lives fixed on algae, sponges or on hard substrates. Spawning of these species occurs year round with some seasonal peaks.

filled with a 1-m<sup>2</sup> shade cloth). Some other types of collectors (including commercial Tahitian collectors and other prototypes) were also trialed. A small float was attached to each spat bag in order to keep it above the seafloor because the lines were fixed down in the water column, towards the substrate.



Spat collection line before deployment (Image: Yves-Marie Anne).

For an initial spat collection trial it was decided that the spat collectors would be submerged during the winter, which corresponds to one of the spawning peaks for these species. Four sites were identified for spat collection: Nouville, Tontouta and La Foa in the Southern Province, and Pagop in the Northern Province. Previous trials carried out in Nouville are showing promising results already. The area around Pagop area was also sampled the year before and has also scored promising results, while Tontouta and La Foa were new sites that were never tested.

Most of the spat collectors were made from locally available materials (e.g. onion bags



Tahitian pearl oyster spat collector with scallop spat (Image: Antoine Teitelbaum).

Anchorage was made with either sand bags or other types of moorings that were placed using scuba. All spat collection lines carried 30 bags and were placed at three different sites in each area in order to define the potential of the different stations that were sampled.

Collectors were left in the water for two months so that spat could settle and grow to a size at which they could be identified. In mid- to late August 2009, the team went back and harvested the collectors. All collectors were recovered and catches were identified by Dr Paul Southgate, bivalve specialist and head of the Aquaculture Division at Australia's James Cook University. *M. gloriosa* and *B. vexillum* were the most represented species in the catch, although many other shells were also collected (but with no commercial importance) but which may have potential for sale as specimen shells. A key to the identification of scallop spat is currently being produced by SPC as a tool for farmers.

Overall, the initial study results are promising, with spat numbers ranging from 0–400 scallops per bag, depending on the site and the type of collection device used. The size at which the scallops were collected ranged from 5–19 mm; smaller specimens were put back to the lagoon. The project will soon start a grow-

out trial period for the collected spat using suspended culture techniques on longlines.

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*Mimachlamys gloriosa* spat (Image: Nadine Sephar).

## Aquaculture potential in Wallis and Futuna

Wallis and Futuna have had very limited aquaculture development over the past few decades. In the 1980s, CNEXO (now IFREMER: Institut français de recherche pour l'exploitation de la mer) examined Wallis and Futuna's potential for aquaculture development, and short-term possibilities were identified, including the culture of exotic bivalves imported as spat. Medium-term possibilities included prawn and milkfish culture to support a pole-and-line fishery. Restocking reefs with trochus was considered as a long-term possibility. From 2004–2005, experiments on *Macrobrachium lar* (native fresh water shrimp) were carried out in Futuna by the Service des Affaires Rurales in partnership with SPC. The experiments were aimed at de-

veloping an integrated culture of freshwater shrimp in taro ponds.

In September 2007, a delegation from Wallis and Futuna visited SPC and met with fisheries specialists from SPC and the WorldFish Center to learn about the potential for developing aquaculture in their islands. It was decided that SPC would assist Wallis and Futuna in assessing its potential for aquaculture development by reviewing suitable aquaculture species, taking into account human, natural, technical and economical factors.

A grant provided by the 'French Pacific Fund', has, among other things, enabled the undertaking of a strategic

analysis of aquaculture potential conducted by a consultant. The SPC Joint Country Strategy mission that visited Wallis and Futuna in February 2009 endorsed this consultancy.

IDEE Aquaculture from France was selected to carry out the review, and a consultant (Jacques Trichereau) visited the territory in June 2009. The consultant undertook the following activities, after visiting both Wallis and Futuna:

- Established a list of economically viable commodities for Wallis and Futuna. This list took into account human, natural, technical and economical factors and described their corresponding markets (export and domestic);



Aerial shots of suitable floating cage aquaculture sites in Wallis island: in the southern lagoon near Honikulu pass (left) and in the south-eastern lagoon near Faioa islet (right) (Images: Jacques Trichereau).

- Identified obstacles and constraints that would hamper the development of aquaculture in Wallis and Futuna, and proposed solutions to solve them;
- Prepared a checklist of necessary financial and technical steps to be taken (e.g. capital investment, training) in order to achieve the above; and
- Reviewed the potential for collaboration and synergies in aquaculture with neighbouring countries and Pacific francophone countries, as well as regional and national institutions.

As a result of the above, the consultant will draft a national

strategic aquaculture plan for Wallis and Futuna, which can be used as a roadmap for developing aquaculture in this territory. So far, the consultant has identified two priority commodities: marine shrimp and finfish. Although these commodities would need to be imported as post larvae or fingerlings, both have promising potential in a country where the demand for seafood is high but the supply is currently low, and is mostly imported at high prices.

Another outcome of the study is that a delegation of officials from Wallis and Futuna will visit New Caledonia's aquaculture sector where they will make

much needed contacts with public and private sector counterparts in the shrimp industry, and also have a close look at two marine fish projects that are currently being developed in New Caledonia.

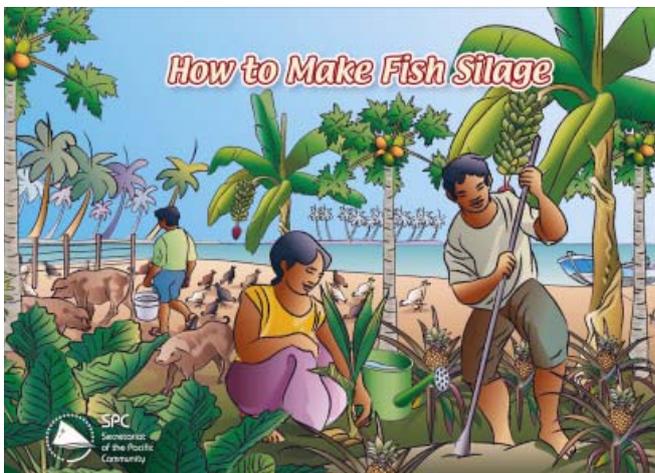
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## NEW SPC COMIC BOOK ON HOW TO MAKE FISH SILAGE



Every year, hundreds of tonnes of fish waste are thrown away in Pacific Islands. This waste is often disposed of in rubbish dumps, where it attracts flies, rats and other pests that can carry diseases and contaminate water.

This new comic book produced by SPC's Nearshore Fisheries Development and Training Section explains simple techniques that can be used to process fish waste into liquid fish silage, an environmentally friendly fertiliser.

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