What is a lobster pueruli trap?

Lobster pueruli collectors can be made out of just about anything. The collectors must, however, be placed in the water at the right time and in the right area in order to attract lobsters as they settle onto a substrate. Lobsters will tend to stay away from the bottom where predation is higher. In some areas of New Caledonia where recruitment takes place, one can see hundreds of small pueruli on the underside of floats, boat hulls or mooring ropes.

For this project, the fisheries services used what was developed in Vietnam, mostly because it has proven to work well. The lobster pueruli collectors in New Caledonia are deployed on longlines (floating) that hang just below the surface.

While looking for places to settle, lobsters will come into contact with the collectors and hide. The longlines can later be pulled from the surface where the pueruli are removed from the collectors. The larvae are then ready for the grow-out phase.

In New Caledonia, collectors were made out of mesh shadecloth and wooden sticks with holes drilled into them.

Images: Henri-Luc Fogliani.

Aquaculture health training trip to Western Australia

Rarahu David

Head of the Health Programme for Non-Pearl-Oyster Aquaculture Facilities in French Polynesia's Fisheries Department

In 2008, following a series of exchanges with Western Australia's Department of Fisheries Animal Health Laboratory (FHL), the Biotechnical and Pearl Quality Laboratory (LBQP) of the French Research Institute for Exploration of the Sea (IFREMER), and the Pearl Oyster Department (PRL), Dr Brian Jones and his colleague, Dr Fran Stephens, visited the PRL-IFREMER-SPE (French Polynesia's Fisheries Department) research station in Vairao, Tahiti. This visit allowed useful exchanges about diseases at pearl oyster farms but also about shrimp and fish diseases. FHL is, in fact, in charge of diagnosing aquatic animal diseases (except for mammals) in the state of Western Australia, and Dr Jones, the lab's head pathologist, is an internationally known aquatic disease researcher.

In order to further their training in specific diagnostic techniques for the marine setting, particularly in microbiology and histology, FHL and SPE jointly arranged to have FHL host an SPE agent (Rarahu David, head of the Health Programme for Non-Pearl-Oyster Aquaculture Facilities) and an IFREMER agent (Pevatunoa Levy, head of histology at LBQP) for two weeks in September 2010.

The trip provided an opportunity to review the information gathered for an histopathological atlas dedicated to the species *Platax orbicularis,* currently in draft. This project, initiated in Tahiti, will benefit from the guidance of Dr Jones.

Pevatunoa Levy received training in the histological techniques used at FHL, particularly the use of decalcification solutions (to soften bones and scales before samples are processed).

At the same time, Rarahu David was hosted by the microbiology laboratory of Dr Nicky B. Buller (author of *Bacteria from fish and other aquatic animals: A practical*

identification manual, 2004[1]). Dr Buller was trained in the various diagnostic techniques routinely used in that lab to identify bacteria that infect marine organisms. The lab carries out about 15 biochemical and enzyme assays similar to those used in Tahiti. Dr Buller trained Rarahu David in how to conduct various microbiological diagnostic tests (methodology, growth on specific culture mediums) and introduced her to a wide range of pathogenic bacteria that could pose a threat to the Paraha peue aquaculture facilities in Tahiti. A photo database was created to facilitate implementation of diagnostics in French Polynesia.

A trip was organised to visit the Cone Bay fish farm (http://www.marineproduce.com/barramundi.html). This farm, located in northwestern Australia, raises barramundi or *Lates calcarifer* in floating sea cages. The farm produces more than 10 tonnes per week and will soon reach 45 tonnes per week. The fish are sold throughout the year at an average weight of 3.5 kg and a price of AUD 4.00 per kg. During our visit, the in-water biomass was 1,365 tonnes spread out over 14 cages of 4,000 m^3, 1 cage of 2,000 m^3 and 2 cages of 1,000 m^3. This farm, located around Turtle Island, the company's living base, has been in operation since 2003. Initially, it was a pearl oyster farm (Maxima Pearling Company Pty Ltd) that experienced high levels of mortality and converted to fish farming.

Some of the eggs produced in Darwin are sent to a hatchery in Fremantle (near Perth), while the rest are raised in Darwin. Once the eggs have reached the juvenile stage, the fish produced in Darwin and Fremantle are transported by truck and then shipped to the Cone Bay site. An acclimation phase takes places in a land-based pond at the Cone Bay farm on Turtle Island. Once fish fry can eat 2 mm-sized pellets, they are transferred to nursery cages at sea using fish pumps. They are fed twice a day by hand or with a pellet gun.

Each cage is cleaned systematically every month. Metal mesh keeps out marine predators (e.g. crocodiles and sharks) and nets above the cages keep out flying predators (birds).

Currently, samples are taken every month in all of the cages. In order to limit the handling of animals, video systems are being tested to replace sampling (by estimating the weight of filmed specimens).

Aqui-S is used to anaesthetise the fish during sampling. During our visit, we were able to watch and take part in routine sampling by FHL in Perth. For each fish sampled, fresh gill and skin conditions are checked, and blood samples are taken while the fish is still alive. Once they are dead, fish are dissected to check the various organs in the internal cavity and to take histological samples (preserved in 10% formalin). Bacteriological samples are also taken from external wounds and internal organs (digestive tube) by using a system that allows the samples (live microorganisms) to be kept alive until they are cultured in the lab several days later.[2]

On the way back, in the outskirts of Broome, we visited a *Pinctada maxima* hatchery (Paspaley Pearl Hatcheries Pty Ltd). Bryan Webster, the hatchery director, took us around the entire facility, which produces 40 million spat per cycle and has very strict hygiene measures and uses no antibiotics.

A third visit was arranged to the Australian Centre for Applied Aquaculture Research (ACAAR), a research centre for aquaculture based in Fremantle, Australia.[3] ACAAR has a hatchery that supplies barramundi fry to the Cone Bay farm. It works with several other species, including *Seriola lalandi*, *Argyrosomus japonicus*, *Pagrus auratus* and *Acanthopagrus butcheri*. The facility offers various degreess in the area of aquaculture[4] but also acts as consultant for aquaculture companies.[5]

All of these instructive visits and meetings have allowed us to continue to improve the diagnostic and preventative techniques used in French Polynesian aquaculture facilities and to pursue exchanges on the topic with FHL and collaboration on the Paraha peue (*Platax orbicularis*) histopathological atlas.

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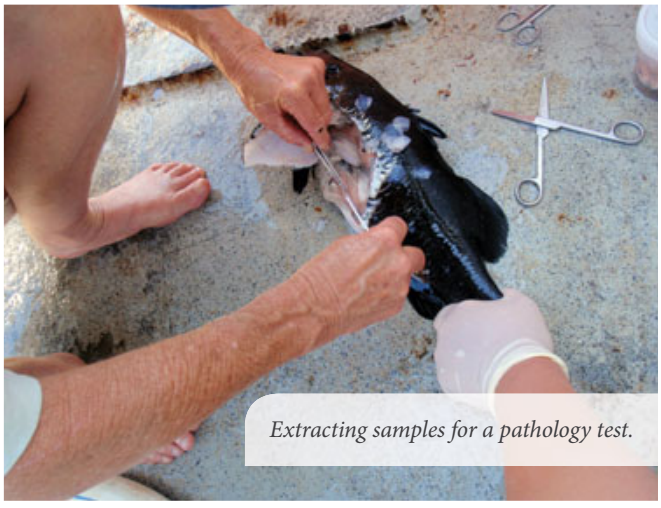

Extracting samples for a pathology test.

[1] http://www.sharingmatrix.com/file/15384495/Bacteria_from_Fish_and_Other_Aquatic_Animals.pdf
[2] See: http://www.mwe.co.uk/mwe/mwe.php?c=3&s=8&p=67
[3] See http://www.challenger.wa.edu.au/Workingwithindustry/acaar/Pages/aboutthecentre.aspx
[4] See http://www.challenger.wa.edu.au/Workingwithindustry/wamaritimetrainingcentrefremantle/Pages/AquacultureTraining.aspx
[5] See http://www.challenger.wa.edu.au/Workingwithindustry/acaar/Pages/ConsultingTrainingServices.aspx