

Private investors commit to mariculture development in Vanuatu

Aquaculture Solutions Vanuatu (ASV) opened its first hatchery in Port Havannah, Efate, on 28 February 2017. The brainchild of Derek French and Jonathan Delaney, ASV initially intends to produce sandfish seed for the restocking of locally depleted populations in collaboration with the Vanuatu Fisheries Department (VFD). In developing the concept, ASV targeted a commodity that is in need of rebuilding, has a known market potential for eventually generating income, and can involve local communities to look after the resource and to participate in harvesting activities. With assistance from VFD and the Aquaculture Section of SPC, the first step for ASV was to develop hatchery technology that is low-tech and low-cost, and can be replicated in other places.

A common problem

As in many countries where sea cucumbers were once abundant, overexploitation has led to severe stock depletion and the eventual harvest ban that is now in place in Vanuatu since 2008. This ban has been lifted in specific areas and on a temporary basis, as was the case in 2014 and 2015.

The global overexploitation of sea cucumbers is well documented and is known to be linked to exporting countries' proximity to Asia where the majority of the demand comes from. More than 80% of sea cucumber fisheries are over-exploited, and within those fisheries, high-value species are harvested first. More than half of all sea cucumber fisheries fall prey to illegal fishing operations, and overexploitation continues despite increasing levels of regulation.

Customary custodians

While most sea cucumber fishing zones around Efate have been severely depleted, some small areas still harbour healthy stocks. They are restricted to a few bays and lagoons where customary custodians were able to effectively manage stocks during the 2015 lifting of the ban. Community-based fisheries management – coupled with new national fisheries regulation for quota, size limits and closures – will become part of the array of measures available for beche-de-mer fisheries management in the future. However, with repeated and more severe depletions each time moratoria are lifted, new questions arise on how to effectively recover fully depleted stocks, and whether hatchery-based production can support a cost-effective option for restocking thereby supporting a viable local beche-de-mer sector.

Low-tech and low-cost

ASV's hatchery operations and the activities that will flow from them will answer some of these questions. Its goal of being cost-effective and low-tech has translated into a simple hatchery design and cheap construction, with the structure built entirely of locally sourced materials. The hatchery site selected by ASV is one of the critical factors that will keep costs down over the long term. Water is pumped from 150 m offshore on a reef habitat that is relatively sheltered from the weather. This provides optimal and stable water quality with minimal filtration required before use. The site contributes considerably to minimising technology and costs, and should be a major factor for future similar projects. The structure is simple but effective, keeping larval culture tanks sheltered from the elements and enabling a good level of control of sun exposure, which is important for maintaining tank temperatures that would otherwise vary greatly between day and night and would place larvae under stress. The simplicity of the system – with water coming into the tanks in a straight line from the reef – enables quick and regular flushing of the line and prevents “dead spots” – places in where the water does not flow properly, and which can cause water quality problems.

A simple and low-cost setup to minimise hatchery capital and running costs (image: Michel Bermudes).





Late night spawning shift during sandfish hatchery training (image: Michel Bermudes, SPC).

A long-term plan

It is still “early days” for the fledgling aquaculture entrepreneurs and there are likely to be some challenges ahead, but this is to be expected at the start of such a venture. Some of these challenges are specific to beche-de-mer aquaculture sea ranching operations and include:

- learning and understanding the seasonality of spawning to optimise the six to seven months of production;
- developing nursery techniques that will enable the highest rate of recovery;
- evaluating the best growout technique (e.g. sea ranching, sea pens) and habitat;
- developing a sustainable sea ranching model in collaboration with the national authority to ensure stock growth while providing financial return to ASV and the communities involved; and
- investigating alternative species to maximise the return on investment for the hatchery structure (e.g. green snails, trochus, giant clams or even local oysters could be produced by the hatchery).

The road ahead

It is rare to see private investment in marine aquaculture in the region, and every one of those occasions should be celebrated, supported and monitored accordingly to give them the best chance of success as they tackle each challenging phase of their development. Aquaculture is now seen as a central theme to generating food security and income at the community level. In this context, VFD is committed to working in collaboration with ASV in order to facilitate development and learn from the experience so that in time, similar hatcheries can be replicated across the country where seed can be produced for the small-scale, community-based farming or ranching of marine commodities.

For more information:

Sompert Rena
Acting Manager, Research and Aquaculture
Division, Vanuatu Fisheries Department
sgereva@vanuatu.gov.vu

Michel Bermudes
Mariculture and Aquaculture Biosecurity
Specialist, SPC
michelbe@spc.int