

Tilapia incubator trials to increase seed production in Fiji

Most subsistence tilapia farmers throughout Fiji depend on the Naduruloulou Freshwater Research Station (NRS) hatchery for their fingerling and broodstock supply. The NRS usually produces its fingerlings by utilising open pond or knock-down tank methods. These methods involve housing breeder fish in ponds or tanks and allowing them to breed naturally. Young hatched (swim-up) fry are collected using scoop nets. The Asian Institute of Technology (AIT) has developed an incubator method, which is now used globally to produce billions of tilapia fingerlings. This method involves holding breeder fish in net cages called hapas in ponds and regularly collecting tilapia eggs. The advantage of this method is that a larger number of eggs can be collected and cultured in incubators, in clean water that is under optimum conditions rather than collecting fewer swim-up fry. Larger numbers of breeder fish can also be held in hapas, which enables better usage of space.

Two years ago, the Secretariat of the Pacific Community (SPC) sponsored a representative from NRS to attend hands-on training on this method of seed production at AIT in Thailand. This was the first exposure of this method to the NRS hatchery and it generated interest among fisheries management, who were eager to trial the method and train a group of hatchery staff in order to operate it. In August 2015, in response to a request from the Fiji Ministry of Fisheries and Forests, SPC mobilized to assist with the trialling and transfer of this technology to Fiji. The experiment had two main goals: to evaluate the technique as an option for tilapia seed supply at the national hatchery and to build staff capacity.

The technology transfer initially involved building an incubator hatchery, with follow-on training on operations and best practices. The training component was undertaken over two days at the station and was split between morning lectures and afternoon hands-on sessions. Sixteen NRS staff, including the Officer in Charge (OIC), participated in the training and key staff is now involved in operating the hatchery, and the hapa-based broodstock and nursery systems.

After the training, Dr Timothy Pickering, SPC Inland Aquaculture Specialist, officially handed over the incubator equipment to Mr Sam Mario, OIC of NRS.



NRS staff member collects tilapia eggs from breeder fish in hapas (image: Tim Pickering).

SPC ACTIVITIES

Follow-up actions, for SPC, will involve the provision of ongoing fine-tuning and support to ensure that the system operates well and produces several thousand fry in order to demonstrate the validity of the concept. If NRS chooses to ramp up production in the future then they will just need to add more breeding hapas and incubators to the system. It is hoped that the adoption of the new technology will allow NRS staff to reach their production goals with greater efficiency and for farmers to benefit from a regular fingerling supply.

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Sam Mario (right) and other staff from NRS inspect tilapia fry produced in an incubator (image: Tim Pickering).