PNG farmers improve their fingerling production skills

The Sirinumu Dam in the Central Province of Papua New Guinea (PNG), which supplies water and electricity to PNG's capital of Port Moresby, drowned the agricultural valley in the area and created a large lake in the early 1960s. Landowners can use this lake for aquaculture purposes to compensate for lost agriculture activities, but a key issue for them is obtaining baby fish fry (fingerlings) for stocking floating cages so that fish can be grown to a harvestable size.

SPC Aquaculture Technician Jone Varawa (at right) and members of the Sirinumu Tilapia Women's Group with fish breeding equipment sourced from Thailand and delivered during a ceremony conducted on September 2018 at a Sirinumu Tilapia Cluster meeting. (image: Gideon Pama, NFA)

Facilitation by PNG's National Fisheries Authority (NFA) and the Aquaculture Section of the Pacific Community (SPC) has led to the establishment of the Sirinumu Tilapia Cluster and the Sirinumu Women's Group, whose membership currently stands at 76 tilapia cage farmers who have adopted aquaculture activities to increase local incomes and food security. These farmers own a total of 185 fish cages, of sizes 3 m x 3 m x 2 m and 4 m x 4 m x 2 m.

The main constraints identified by these tilapia farmers include:

- inconsistent supply and non-uniform size of tilapia fingerlings; based on the 185 cages now in place, the yearly fingerling need is estimated at 800,000;
- lack of knowledge about tilapia cage management practices;
- poor record keeping;
- lack of financial skills;
- absence of local suppliers of specialized aquaculture equipment, such as cage nets, hapa nets, scoops and scales;and
- need for frequent extension support, advice and monitoring; it has been decided to engage an extension consultant for the farmers' groups at Sirinumu Reservoir.

With the assistance of the New Zealand Government-funded Sustainable Pacific Aquaculture project (PacAqua), SPC and NFA are working with Sirinumu tilapia farmers to prioritise actions addressing these constraints. The project officers are training the lead farmers on basic tilapia fry production methods using hapa nets, and on tilapia cage grow-out management. Because there are no 'aquaculture shops'

selling equipment in PNG, NFA and SPC have facilitated access to sources of specialised aquaculture equipment in Southeast Asia to establish hapa-based tilapia fry production systems.

The 76 farmers organised themselves into smaller groups of 8–15 farmers, each with a group leader to manage fry production. Seven groups of farmers have so far constructed 10 ponds to operate as hapa-based breeding systems for tilapia fish. The lead farmers and their assistants received hands-on training on tilapia fry production by the project team as the first priority of the project intervention. The six lead farmers are Tom Moduba, John Toina, Arthur Unene, Kevani, Charlie Kone and Kila Bobogi of the Sirinumu Women's Group. The target set by these lead farmers is to produce a minimum of 15,000 fingerlings each per month to supply cage farmers in their area.

Based on the production survey conducted to benchmark farmer performance in 2017, the 185 cages operated by these 76 farmers produced around 20 tonnes of fish in total. While this is certainly worthwhile, these same 185 cages are capable of producing 182 tonnes per year, worth PGK 1.8 million (AUD 760,000). Using the assistance provided through the New Zealand-funded project to increase tilapia fry production, Sirinumu farmers will aim at approaching this figure.

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Jonah Bobogi and John Toina harvesting the first batch of their tilapia fry from a hapa-based breeding system.
(images: Jone Warawa, SPC)