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C-SPODP II project USP04 Aquaculture Training

Dr Timothy Pickering

Senior Lecturer in Aquaculture
Marine Studies Programme
The University of the South Pacific
Pickering_t@usp.ac.fj



C-SPODP II project USP04 Aquaculture Training

The C-SPODP-II USP04 Aquaculture Training project funded by Government of Canada has three main components:

- development of regionally- and gender-appropriate aquaculture training materials;
- development and conduct of regionally- and gender-appropriate in-country aquaculture training courses, and;
- training of regional personnel through training attachments within and outside the region.

The project began in 2001 with introduction of an undergraduate aquaculture course and has continued with in-service short-courses, community training, curriculum development of aquaculture training materials, and up-grading of USP facilities to offer training. The training to date has taken place in Fiji, with a regional dimension added by bringing participants in from other countries or by including students and recent graduates from other countries while still based in Fiji. As the project matures more training will be done off-shore, although the higher level of aquaculture development in Fiji does offer advantages in bringing nationals of other countries across to Fiji for their training.

The USP04 project represents USP's main contribution to the regional aquaculture project being coordinated by SPC and implemented by SPC, USP and Worldfish Centre.

The USP04 project is due to end in December 2003, however CIDA advise that a time (but not budget) extension until December 2004 is possible.

Undergraduate course in aquaculture

The first major task of the project in 2001 was to introduce a new course on aquaculture, MS324 Aquaculture in Pacific Island Countries, as an elective course for the degrees of BSc in Biology and BSc in Marine Science at the University of the South Pacific. The third offering of this course is now underway. Several USP graduates have now found jobs in the Fiji Fisheries department largely as a result of passing this course. Additionally, four Fiji Fisheries staff have taken this one course all by itself, enrolling as "unclassified studies" students. Staff of Tonga and Kiribati Fisheries have also taken the course as part of their degree programmes. Among USP undergraduates MS324 has become known as "the course that can get you a job".

Short-course community and in-service training

For 2002 the focus of the project was moved on to short-course and community training in aquaculture. In the second half of 2002 a range of courses were prepared, mainly targeting freshwater aquaculture in rural communities, and were offered in Fiji jointly as collaborations with Fiji Fisheries

Department. The trainer was Mr Satya Nandlal, a Fiji national for IMR within USP and now with SPC. The following such courses were run in 2002:

14-16 August - **Women's Workshop on Tilapia and Freshwater Prawn Pond Management and Growout**, Nausori, Fiji, 25 participants

12-14 September. – **Men's Workshop on Tilapia and Freshwater Prawn Pond Management and Growout**, Nausori, Fiji, 26 participants

28 October – 1 November - **Workshop on Tilapia and Freshwater Prawn Pond Management and Growout**, Nausori, Fiji, 24 participants

19-22 November - **Tilapia and Freshwater Prawn Pond Management and Growout**, Sigatoka, Fiji, 21 participants

An outcome of this training has been to increase demand in Fiji for prawn and tilapia fry by the private sector for stocking into ponds.

On 14-18 October 2002 two back-to-back workshops on shrimp were run, one on **Shrimp Farming Potential** (about 60 participants from communities and private-sector) and one on **Shrimp Disease Diagnosis and Prevention** (15 mainly government participants from Fiji, Tonga, Vanuatu, Solomon Islands, New Caledonia, French Polynesia). The latter workshop, run by Dr Alec Forbes, Dr Tim Pickering and Mr Sunil Prasad, aimed to raise awareness about disease issues, increase capacity to manage any disease outbreak, and help preserve the competitive advantage enjoyed by PIC's due to their disease-free status.

For 2003 the emphasis continued to be on running short-course and community-training courses in aquaculture as "pilots". The pace of training has recently been slowed, however, so that more effort can go into curriculum development based on the course "pilots" offered so far, to leave in place a lasting package of training materials for use beyond the end of this project.

The following courses have been run in 2003:

February (4 weeks) – **Regional workshop on hatchery techniques for production of freshwater prawn *Macrobrachium rosenbergii* post-larvae** - Naduruloulou, Fiji, 10 participants from Fiji, Cook Islands, and Vanuatu

4 - 8 August. – **Regional Train-the-trainers Workshop on *Kappaphycus* seaweed farming** – Kiuva Village, Tailevu, Fiji, 12 participants from Fiji and Solomon Islands

Seaweed farming training video

A training video on *Kappaphycus* seaweed farming has been filmed with running time of 29 minutes, and it officially premiered at Kiuva Village, Fiji, in February 2003. The video has a technical focus and complements an SPC video on community benefits from seaweed aquaculture which was filmed in Kiribati. A Solomon Islands Pidgin version of the USP video was supplied to Esaroma Ledua who was engaged by SPC to run seaweed farming training in Solomon Islands in December 2002.

These two videos are currently on display in the poster section of this Heads of Fisheries meeting, and a copy of the USP video has been presented to all country participants. It is presently available in English, Solomons Pidgin and Fijian versions, and translation into other languages can be accommodated upon request.

Up-grading of USP aquaculture facilities

Thanks to equipment provided under this project, a saltwater shrimp *Penaeus monodon* hatchery has been established in the Seawater Laboratory at USP's Laucala campus during 2002, in collaboration with a private sector partner, Gulf Seafoods (Fiji) Ltd. This is now fully operational, and when broodstock are in season we are able to base regional trainees here on attachment to acquire micro-algae, brine-shrimp and *monodon*-larvae culture skills. So far several recent USP graduates from Fiji and Solomon Islands have been attached in this way, and we can entertain requests for fisheries staff of USP and SPC countries to be similarly attached for one or two-month periods. Priority will be given to countries which have *monodon* or similar species earmarked for development in their fisheries development plans.

The people who have so far completed this attachment are recent BSc Marine Science graduates who took the course MS324 Aquaculture, and they are the first in a new cadre of tertiary-qualified regional personnel who will be entering the workforce already with hands-on skills in aquaculture.

Recently in 2003 the Seawater Laboratory facility has been further upgraded to also function as a freshwater prawn *Macrobrachium rosenbergii* hatchery, in order to keep the facility running when *monodon* broodstock are out-of-season. It was not known whether this would even be possible since there is no natural freshwater supply at USP Lower Campus, forcing us to use town-supply (chlorinated) water. Treatment of this water by filtration and air bubbling was successful in making it fit for freshwater larval-rearing work. A trial batch of 3000 *rosenbergii* post-larvae was produced in July 2003 and was used to stock a pond at Montfort Boys Town near Suva.

USP is grateful to Fiji Fisheries Department for their collaboration with us in freshwater aquaculture and for their provision of *rosenbergii* broodstock. Without their help this project would not have been possible. Larger-scale production of larvae is now under-way to expand this training opportunity and to assist Fiji Fisheries in meeting the demand in Fiji for freshwater prawn post-larvae. The *rosenbergii* hatchery can operate year-round and can similarly be used as a model facility for regional training attachments in *rosenbergii* hatchery training.

Aquaculture training manuals and course materials

Most effort so far in 2003 has gone into building upon the materials developed for the courses run to date in this project, treating these courses as "pilots", to work these materials into sets of training products that can then be used for future offerings both during and beyond the present project. It is intended that each title be the subject of a booklet, and a Powerpoint presentation.

The following training-course titles are now underway:

Tilapia Hatchery Operation
Tilapia Pond Construction
Tilapia Pond Preparation For Stocking
Tilapia Growout
Tilapia Marketing and HACCP

Writing Team – Satya Nandlal, Feral Lasi, Mere Namudu, Reuben Sulu, Tim Pickering

Freshwater Prawn Hatchery Operation
Freshwater Prawn Pond Preparation
Freshwater Prawn Growout

Writing Team – Satya Nandlal, Feral Lasi, Mere Namudu, Reuben Sulu, Tim Pickering

Microalgae culture notes

Writing Team – consultant (e.g. Cathy Johnstone, CSIRO), Tim Pickering

Kappaphycus Seaweed Manual (FMC manual to be reprinted in English, and translated into Fijian and Solomons Pidgin)

Writing Team – Erick Ask, Sam Mario, Mere Namudu, Feral Lasi, Reuben Sulu, Tim Pickering

Fish/shrimp/prawn pond site selection manual

Writing team – Alec Forbes, Satya Nandlal, Tim Pickering

Further Training courses

From now until the end of the USP04 project, it is intended to offer the following training courses:

October 2003	Driti Village tilapia hatchery and growout Satya Nandlal, Tim Pickering
August – September 2003	Follow-up on impact of past training courses Satya Nandlal, Tim Pickering, Elise Huffer
September 2003	Economics of different aquaculture pursuits workshop Australian consultant, Satya Nandlal, Tim Pickering
October 2003	Tilapia/prawn growout in Ba/Tavua (existing farmers) Satya Nandlal

November 2003	Tilapia/prawn growout in Rakiraki (existing farmers) Satya Nandlal
December	Micro-algae culture workshop Consultant, Tim Pickering
January 2004	Tilapia/prawn growout in Sigatoka part II (new farmers) Satya Nandlal
February 2004	<i>Macrobrachium</i> prawn hatchery training Satya Nandlal, Tim Pickering
March/April 2004	Tilapia marketing and HACCP (existing farmers) Satya Nandlal, Tony Chamberlain
April 2004	Aquaculture awareness (based on Economics Workshop) for prospective fish farmers, and for bank loan officers Satya Nandlal, Tim Pickering
??	Repeat above trainings with regional participation in Fiji and in other selected countries as time, money and staff permit, until December 2004