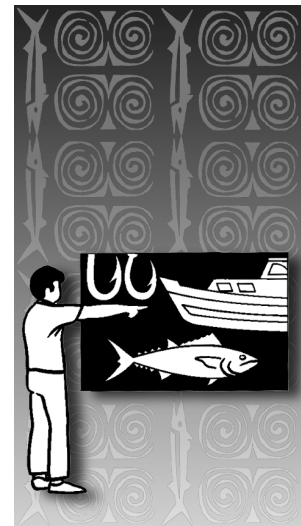




Secretariat of the Pacific Community

Fisheries Education and
T R A I N I N G

Number 17, January 2002

I N F O R M A T I O N B U L L E T I N

Editor: Michel Blanc, Fisheries Education and Training Adviser, Training Section, SPC, BP D5, 98848 Noumea Cedex, New Caledonia (Phone: +687 262000; Fax: +687 263818; E-mail: MichelBl@spc.int). Website: <http://www.spc.int/> **Production:** Information Section, SPC. **Printed with financial assistance from the Government of France.**

NOTE FROM THE EDITOR

The Fisheries Education and Training bulletin should reach you soon so I take the opportunity to send my best wishes for the New Year. May all your training activities be successfully carried out in 2002!

This seventeenth issue of our bulletin focuses on SPC Training Section's undertakings during the second semester of 2001. A number of projects were implemented, including a boat-building course at the Vanuatu Maritime College, tuna handling and grading workshops in Nauru, the annual SPC/Nelson Fisheries Officers course, a seaweed farming workshop in Tonga and some new resource materials.

Training in seafood quality management remains a hot topic with interesting articles received from Tonga and USP. The Vanuatu Maritime College gives us its training calendar for the new year, Yap reports on a massive boat safety training program and Nauru exposes its plans for 2002. And for the aquaculture enthusiasts this issue presents a training provider in Malaysia and a course on grouper farming.

Happy reading!

Michel Blanc

Contents

FEATURES	p. 2
NEWS FROM THE FISHERIES DEPARTMENTS	p. 6
SPC FISHERIES TRAINING ACTIVITIES	p.9
AROUND THE TRAINING AND EDUCATION CENTRES	p. 16





FEATURES



A great little boat for the Vanuatu Maritime College!

Sitting proudly in the Santo Boatbuilding Yard is a brand-new 5.7 metre boat belonging to the Vanuatu Maritime College. Soon she will have her name painted on: *Emmnao*.

Why the name?

Emmnao is derived from the Bislama phrase 'Hem nao!', meaning 'That's great' or 'Just what we need'. But it is also a reminder of the boat's history. She was built as a practical training exercise, using a new technique demonstrated by an instructor from New Caledonia's maritime training institution, the Ecole des Métiers de Mer.

The new technique used in building *Emmnao* was developed in the US and is known as the WEST system – standing for Wood Epoxy Saturation Technique. Wood has been used for boatbuilding for thousands of years, but has a tendency to crack, split and even rot. In the WEST system, wood is considered a fibre that can be glued with epoxy resin into the shapes required, in much the same way that fibreglass is used for hulls of polyester resin. This increases the rigidity of the hull, eliminates the risk of cracks and rot and results in a boat that requires less maintenance and lasts longer.

Work on *Emmnao* started in May this year, when Instructor Jean-Pierre Malingrey arrived in Santo for a two-week stay and met with the Santo boatbuilder, Marcel Rosflender, and his team. Together they laid down the patterns, frames and stringers, working from plans and instructions written entirely in French, which Marcel and his helpers are not familiar with. All the timber used in the boat (mostly rosewood) was grown on the island of Santo.

The frames were covered inside and out with plywood and everything was thoroughly covered in four coats of resin. Once this process had started, Jean-Pierre returned to New Caledonia. He came back for two weeks in August to help with final touches to the building and when these were completed, the boat was painted white and blue.

Marcel was most interested in the new technique and in the design, both different from those he normally uses. 'She should last a long time', he commented, 'and cost a lot less in upkeep. And the treatment can be used on the other boats that I build if that is what the customers would like'. *Emmnao* has not yet been trialled at sea because she is waiting to be fitted with her 75 hp Yamaha outboard engine,



Emmnao with her final coat of paint

which will not arrive from Japan until early next year. But plans are already in hand for her use.

Nare Wolu, the Vanuatu Maritime College's Fishing Instructor, is going to outfit *Emmnao* with gear for trolling and deep bottom fishing. Nare's main task at the Vanuatu Maritime College is training fishers in rural areas. *Emmnao* will be an excellent boat for practical fishing training and Nare is really looking forward to using her. *Emmnao* will also be useful for training 'taxi-boat' operators who carry passengers between islands and along the coast of the larger islands, and who require training in safety, navigation, and boat and engine maintenance. Her top speed will be about 15 knots, twice as fast as that of *Etelis*, the vessel currently used by the College for fishing training. Apart from her practical value, *Emmnao* is a fine example of cooperation between four different institutions: the maritime training colleges of New Caledonia and Vanuatu, the Santo Boatbuilding Yard and the Secretariat of the Pacific Community, which funded the whole operation.

Vanuatu Maritime College thanks all who were involved:

- Christian Blanchard, Director of the Ecole de Métiers de la Mer in Noumea, for allowing his boatbuilding instructor to spend so long in Santo;
- École des Métiers de la Mer instructor, Jean-Pierre Malingrey, for his skilful and friendly assistance;
- Marcel Rosflender, Joseph and Fredson at the Santo Boatbuilding Yard for their patience and hard work;
- Michel Blanc and Teri'i Luciani of SPC's Fisheries Training Section for coordinating this project;
- The government of France for providing funds for Jean-Pierre's travel, for all labour and materials, and for the engine.



Jean-Pierre checks that everything is done properly



The hull with the plywood thoroughly soaked in resin

Improving HACCP application in the Pacific Islands

*By Tony Chamberlain
University of the South Pacific*

Introduction

The European Union (EU), United States (US) and Japan account for 90 per cent of seafood exports from the Pacific Island region. Most of us involved in the area of fish inspection are familiar with the HACCP requirements of the Codex Alimentarius and the EU, US, Australian, New Zealand and other markets.

These requirements present a threat to the export fish trade from the Pacific region because the national authorities and the industry need to become more HACCP-competent. There are numerous incidents of fish exported from the Pacific Islands being rejected in major markets (see for example the US Food and Drug Administration (USFDA) website <http://www.fda.gov>). It is crucial that trade with the EU, US and other major markets be maintained by meeting current seafood safety regulatory requirements and by keeping abreast of changes in this emerging and rapidly changing field. Let's examine the background and look at some development strategies including the role of the University of the South Pacific.

Background

Sutherland *et al.* (1992) conducted resource development surveys that demonstrated an acute shortage of technical expertise in the marine sector in the Pacific Island region. McDorman (1998) found that the immediate priority was for exporters to have functional, written HACCP plans and SSOP plans formulated by a qualified individual. He noted the near-absence of such trained individuals in the Pacific Islands, and recommended that attention be focused on mechanisms to immediately provide training that leads to

the required qualifications to private sector exporters. McDorman also found few government fisheries officials charged with seafood safety responsibilities having an adequate working knowledge of HACCP regulations.

In April 1997 SPC and FAO collaborated on a nine-month Technical Co-operation Project (TCP) to examine the food safety requirements of overseas markets (Roberts, 1998). The project recommended the organisation of training activities and the provision of HACCP specialists to assist regulators and exporters. To support project recommendations, FAO and SPC organised some certified HACCP workshops. Also in 1997 a HACCP consultant assisted seafood exporters from Fiji, Samoa and Tonga. All companies that received assistance in 1997 implemented HACCP to a basic level of compliance. The following recommendations were made in response to the consultant's findings.

Recommendation 1: that seafood exporting companies be assisted to implement all of their HACCP system by helping the HACCP officers with further training.

Recommendation 2: that assistance be given to controlling authorities to better establish their role in a national food safety regime, and to facilitate entry to Europe by enabling authorities to become competent authorities as defined by the EU.

Also a recent assessment of marine sector training needs for Pacific Island countries by Watling (2000) recommended that HACCP training be more readily available to the private sector. The demands of HACCP and EU requirements are likely to get more stringent and there is clearly a need for more readily available training in HACCP and EU princi-

ples. This is not a one-off training as amendments to the regulations are being made that reinforce the need for refresher courses. Currently the opportunities for this training are limited. Further to this the training needs to be recognised and accepted by importing countries and relevant international agencies; this will largely depend on the credibility of the trainers and training institution.

Since the TCP ended overseas consultants have provided some assistance to PNG and Samoa under Australian funding, to Tonga under New Zealand funding and to Kiribati under Japanese funding.

There is also a proposal in place for an FAO project that will focus on capacity building of competent authorities in the Pacific Island region.

So there have been some positive initiatives, but it appears that much more work is still needed, especially in the areas of:

- capacity building to strengthen local competent authorities;
- training – on going and appropriately packaged for a wide range of stakeholders; and
- laboratory establishment and certification.

Development strategies

The EU and US regulations leave no option for the processors or producers of seafood seeking entry into their markets. All seafood seeking entry into the EU and US must have been processed or produced consistent with an effective HACCP system. McDorman (1998) pointed out that, while under no obligation to do anything, the governments of seafood exporters have the following options:

- no action;
- equivalency; or
- action short of equivalency designed to facilitate seafood exports.

It is easy for a government to adopt the option of no action: No costs are incurred and the burden of compliance rests solely on the exporters. However, seafood exported to the EU must come from an EU-approved processor, and seafood exported to the US requires that the importer has information from the exporter (processor) that satisfies the FDA; so, without government assistance, exporters may not obtain entry to the EU or US markets.

The equivalency option would benefit exporters because it is easier for them to be regulated by their own governments than by a far-distant importing state; the seafood in question would also be subjected to less scrutiny by the officials of the importing state. For the EU the requirement is that a European Commission expert assess the equivalency of an export-

ing country's laws and administering agencies and determine the conditions to be met for seafood from that country. The US system for equivalency requires a direct government-to-government MOU. To achieve an MOU, the government of an exporter must be able to show that its laws are equivalent and that the agencies mandated to administer the laws have equivalent capacities and infrastructure to the FDA. Both the EU and US regulations are flexible regarding specification of processors and product. A government seeking equivalency could implement a regulatory food safety regime to cover all food safety issues seafood or fisheries only or specific seafood exports such as a cannery or fresh-chilled tuna.

“Action short of equivalency” is a useful middle option that a government could adopt that would be of benefit to exporters. Both EU and US regulations recognise that, even without an equivalency arrangement, the government of the exporter can, through health certificates and other documentation and action, facilitate the export of seafood to the EU or US. The more active and responsible the government of an exporter in assuring the safety of exported seafood, the easier it will be for an exporter to meet the import requirements of the EU and US. Influencing the choice of strategic regulatory options is the amount of seafood currently exported and likely to be exported in the future. A country without seafood export capacity is more likely to be attracted to the “no action” option. Countries seeking to attract the investment of export processors may find the implementation of a food or seafood safety regime an important incentive for investors. In evaluating the strategic regulatory options, a government should be mindful of the number of seafood exporters and the type of product being exported. If seafood exports are dominated by a single fishery product, the cost and benefits of a regulatory food safety regime may be different than if the exported product is diverse and consists of small amounts.

A number of Pacific Island countries appear to be moving towards comprehensive food safety laws, for example, the FSM, Fiji, PNG, Kiribati and Solomon Islands. There is no specific form to which the regulatory regime must conform. Thus, the legislative vehicle could be fisheries legislation, health statutes or a food control law. The decision that must be made is whether the administrator/enforcer of the seafood safety laws will be the health, food, fisheries or trade department as this will determine what legislative vehicle (health, food, fisheries or trade) is to be utilised. The detail of the standards for the premises and sanitation for a processor, the standards for fish products and for HACCP can be derived from the Codex Food Code and the related work of the Codex Alimentarius Committee. It is worth noting that EU and US standards are not in full concurrence with the Codex Food Code, but the Codex Food Code is the most important source for such standards. Despite these regulatory initiatives there is uncertainty over the capacity of health departments or equivalent bodies to administer new-

ly drafted laws, to ensure and provide qualified inspectors, to do the necessary laboratory testing, and to effectively enforce the laws and regulations. It is possible that a regional approach may be appropriate in dealing with seafood safety in the Pacific Island region, particularly regarding fish exports.

A regional approach could harmonise national laws and provide useful models. Regional seafood safety inspectors or HACCP- specialists are good in theory; however, distance and the timing of need for inspection and HACCP specialists seem to mitigate against regionalism and in favour of national approaches. A series of regional laboratories where testing of seafood could take place is worth investigating. The practicalities of distance and timing are less pressing than in direct inspection but may still weigh against regional product-testing facilities. Certainly a regional capacity building and certification project, based on regional and in-country training, could provide a significant improvement in the level of regional seafood safety expertise at many levels of government and commercial sectors. It would certainly improve the Pacific Islands' international trading image. Whatever approach is adopted, regional or national, any government activity beyond "no action" will require funding. Since seafood inspection will ultimately benefit exporters, it might be possible to recover costs from those making use of the service. As already noted, this only makes sense where a direct economic benefit accrues to the exporter.

The University of the South Pacific

There has been a lot of endorsement from the region for the Marine Studies Programme (MSP) at the University of the South Pacific (USP) to take the initiative in the development and implementation of appropriate, ongoing training packages (Recommendations 1, 2 and 6, First Heads of Fisheries Meeting, Noumea, 9-13 August 1999; CROP Marine Sector Working Group, Apia, 28 March 2001; Output 4, Second Heads of Fisheries Meeting, Noumea, 23-28 July 2001). Of particular note is the general consensus at the Second Heads of Fisheries Meeting that developing capacity in seafood safety has been neglected by regional organisations. The Marine Studies Programme is ready, and is in a strong position, to act as an agency for this role. Since 1998 USP has been equipped with a Post Harvest Fisheries Laboratory and a training facility suitable for seafood safety courses. The USP Post Harvest Fisheries Lecturer, recruited in 1996, is well trained in HACCP principles and is a registered associate food safety auditor. MSP's Post Harvest Fisheries Development project has already made steps to improve seafood quality and safety at the community level (see www.usp.ac.fj/marine/seafoodproject). Also USP's Institute of Applied Sciences can perform chemical and microbiological tests and has received a provisional certification of following Good Manufacturing Practices and trained internal auditors. The main drawback to date is lack of funding, and although funding

options are being examined, nothing concrete has been made available to date. It is encouraging that the proposed FAO project is looking to collaborate with MSP.

References

Barker, J. and A. McKenzie 1996. Review of HACCP and HACCP-based food control systems. *Infosh International* 6: 44-48. US Food and Drug Administration. 1998.

Fish and Fishery Products Hazards and Controls Guide. 2nd ed. Rockville, MD: US Food and Drug Administration 276 Pages.

McDorman, T. 1998. Seafood Safety Standards (With Special Reference to HACCP): Review of the Import Regulations of the U.S. and E.U. and the Relevant Laws of the South Pacific Region.

FAO Technical Cooperation Programme (TCP/RAS/6713). SPC, Noumea. Roberts, S. 1998. Implementation of HACCP for the Seafood Industry in the Pacific Region.

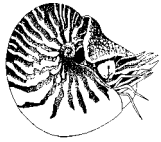
SPC Report for Regional Workshop on Economic Strengthening of Fisheries Industries in Small Island Developing States in the South Pacific, Apia, Samoa, 14-18 September 1998. Sutherland, P. H; S.T. Cavuilati A.C. Robertson, and G. R. South 1992. Human Resource Development and Planning in the Pacific Islands Fisheries Sector.

Technical Paper 201. ISSN 0081-2862. Watling, D. 2000. Training and Education Needs Assessment in the Marine Sector for the Pacific Island Countries. Suva, Fiji: University of the South Pacific.

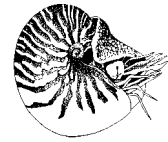
For more information contact:

Tony Chamberlain
Marine Studies Programme
The University of the South Pacific
PO Box 1168, Suva, Fiji
Tel (679) 212876, Fax (679) 301490
Email : chamberlain_t@usp.ac.fj





NEWS FROM THE FISHERIES DEPARTMENTS



NFC staff sharpen their handling and grading skills

The small island state of Nauru requested a workshop from SPC's Fisheries Training Section on handling and grading for local staff involved in the country's fledgling tuna industry.

While the government-owned company Nauru Fisheries Corporation has only been operating its sole longliner (NFC 5) for a few months, catches are being exported to Japan and development plans for acquiring alia vessels from Samoa are well underway.

The workshops ran during the first week of September and targeted both the crew of NFC5 and staff of NFC's fish market who handle catches on shore and pack tunas for export. Several staff of the Nauru Fisheries and Marine Resources Authority (NFMRA), NFC, and six local fishers also attended the workshops. A total of 32 persons were trained.

The Wednesday (first) workshop mainly targeted the crew of NF5 (18 m catamaran), and so the vessel did two shorter trips that week instead of its usual four to five day trip.

The vessel therefore came to port Wednesday morning to offload its catch (it had sailed on Sunday and done two sets on Monday and Tuesday), the crew attended the workshop in the afternoon, sailed back Thursday morning to do another couple of sets, and returned Friday morning to meet the Air Nauru flight in the afternoon.

In addition to NF5's crew (skipper, engineer and four deckhands), six local fishers interested in tuna longlining and prospective crew on NFC's forthcoming longliners also attended. The workshop was run at NFMRA, in a small meeting room that had been set as a training room.

The classroom session covered a presentation of the sashimi market in Tokyo (where Nauru fish is sold) and then focussed on on-board handling procedures using slides, video and transparencies.

After that session, we moved to the fish market to handle a couple of bycatch tunas that had been unloaded that morning and had been left intact for the workshop (one small yellowfin and one albacore). A simulation of the on board handling procedures was done, then trainees were shown the position of the tuna's brain and major blood vessels. One local private fisher then practised his skills on the second fish. A third tuna was set aside for the next day.

The Thursday workshop was attended by five staff of the fish market (including its new manager, Chris Marstin) and twelve staff of both NFMRA and NFC (including NFC's manager Roland Kun). That workshop targeted shore staff, so in addition to the description of the Japanese market and on board handling procedures (shore staff should know how sashimi-grade tunas need to be handled onboard the vessel), grading parameters and the factors that affect price were explained. This took most of the day. In the afternoon, the left over bycatch tuna was used to demonstrate tuna handling.

On Friday morning, the workshop reconvened at the fish market. Ten bigeye and two yellowfin caught by NF5 on its two short trips were ready for export and packing operations started at 9 am. This provided an excellent opportunity to run a practical grading session with market staff and other attendees. From the twelve fish graded that morning, three were left on the local market and the others packed for export. Those fish left Nauru on Air Nauru flight to Brisbane at 2 pm then onwards to Tokyo for the auction at Tsukiji market the following Monday.

This was the first time fish caught by NF5 had been graded prior to packing and export. The only screening that used to be applied was based on size (all bigeye and yellowfin tunas above 35-40 kg were considered as suitable for export to Japan) and no prior inspection of the meat (tail cut) was made.

NFC's longlining operation has been operating for almost a year and weekly exports have been regular and consistent for less than this – the fish graded during the workshop made the 16th shipment to Japan. So far, financial returns have been encouraging with bigeye commonly fetching 2000+ yen/kg and yellowfin in the 1000–1500 range.

As a result of the workshops, several recommendations were made to improve presentation and quality of the catch. These include using the Tanaguchi method (coring of spinal cord) on all large tunas and using 'mutton cloth' socks to wrap fish before placing them in Refrigerated Sea Water. Shore staff were also advised to store tunas in ice with belly down and for those fish being unloaded on the day of shipment, to store them in an ice slurry for the last few hours between offloading from the vessel and packing.

The grading session of the workshop was useful to all. The good thing about NFC's operation is that it is small (about

ten pieces are packed weekly i.e. half a ton of product). This means that grading can be done with great care.

To that effect, NFC staff were shown a technique that works well when you are not under the pressure of having hundreds of tunas to grade within a limited time frame.

This technique consists of placing meat samples (tail cuts) on a white surface (a piece of polystyrene board for instance) so as to better analyse and compare the colours, defects, fat content, etc. Also, by leaving the meat sample exposed to the air for a few minutes you can assess the potential of the meat to turn bright red.

The board with all the samples can be transported easily outside the packing room—neon light alters colours—for checking colours at daylight. If time does not permit to go outside, the assessment of colours should be done at torch light.

The other good thing about this grading session is that trainees observed several commonly found defects (burnt meat, improper bleeding, rainbow sheen, brown meat, external bruises). As a result of the workshop and with a few more weeks of experience local market staff should be able to have a better idea on how to sort fish for export to Japan from the catch—tunas that are likely to induce a financial return on the demanding sashimi markets.



The trainees were exposed to all aspects of grading and handling sashimi-quality tuna

“Clean, cool and gentle”

*by Silika Ngahe
Ministry of Fisheries, Tonga*

“Clean, cool and gentle” ... these words are not usually associated with fishermen and fish processors, but they pretty much hold the keys of success if you are serious about producing and exporting quality seafood.

The importance of good handling and processing practices at sea and on land cannot be overemphasised because fish begin to spoil as soon as they die.

Proper handling and storage of fish at sea ensures that the catch stays as fresh as possible until it is landed. These practices are fundamental in order to maximise returns.

Adequate design and training on proper handling techniques are essential tools to achieve these aims for any country that places economical importance on its fisheries. The Tongan Ministry of Fisheries is conscious of these facts, and to emphasise its extension program, requested a specific Seafood Handling and Processing workshop under the Tonga In-Country Training (ICT) Project, funded by NZ MFAT under New Zealand/Tonga bilateral aid programme, from 20 to 31 August 2001.

Francisco Blaha, a former fisherman himself who later gained postgraduate qualifications in marine biology and food science, was commissioned to deliver this two-week workshop. He is deeply involved in adult training, having interacted in a multicultural environment with Latin American, Polynesian, Asian, African, Middle Eastern, and Eastern European fishers and processors for the last 18 years.

The overall objectives of this training were:

- train fisheries staff in safe fish processing and handling;
 - train personnel of the local fishing industry in safe fish processing and handling;
 - review current practices at industry establishments and in the government-run fisheries market;
 - to increase the awareness of seafood safety in the local export industry and among domestic retailers.
- The training was presented in two modules of five working days each. Every day consisted of two theoretical sessions plus a practical and discussion session in the afternoon. The afternoon sessions were designed to apply the theory presented in the morning.

The second week was spent on fishing vessels and in factory locations in the Tongatapu and Vava'u groups.

The areas covered by the training were:

- maintaining personal hygiene and use of hygienic work practices working with seafood;
- cleaning and sanitising, a seafood processing plant and equipment;
- fish spoilage factors, and how fish spoilage is controlled;
- identifying characteristics of fish quality;
- chilling seafood products and managing a chiller;
- Handling fish products;
- freezing seafood products;
- Grading and packing seafood products to export specifications;
- Handling of tuna for the sashimi market;
- An introduction to HACCP (the Hazard Analysis Critical Control Point system);
- A Prerequisite programme in a seafood processing operation.

A total of 18 participants, comprising fisheries officers and personnel from private fishing companies, successfully completed the training; and at the final ceremony, explicit emphasis was made to the participants to pass the training materials on to others in their own workplaces, as well as the importance of the extension role for a fisheries officer, particularly in passing in a realistic and practical way, the “clean, cool and gentle” message.

For more information, please contact:

Ms Silika Ngahe
silikang@tongafish.gov.to





SPC FISHERIES TRAINING ACTIVITIES



SPC/Nelson Polytechnic Practical Course

Nine students from the SPC/Nelson Polytechnic course arrived in Noumea on 17 June to undergo a five-week practical training on fishing techniques. The objective of the training was to expose participants to practical aspects of various types of fishing.

During their first week in Noumea they heard lectures by different SPC staff members on topics that not covered during their time in Nelson. These lectures included port-sampling techniques offered by the Oceanic Fisheries Programme. The Coastal Fisheries Programme taught fish aggregating device (FAD) fabrication and deployment, deep bottom fishing techniques such as longline and use of handreels, tuna longlining and trolling around FADs with baits and lures. Field visits were made to places of interest such as live reef fish operators' facilities, aquariums, a prawn farm run by IFREMER in New Caledonia and the Tjibaou Cultural Centre. In the practical fishing session, participants used two boats, the 7-m catamaran, *Darmad* and the smaller 5-m skiff, *Pop*, generously provided by the Maritime Authority and the School of Fisheries (EMM). The latter also kindly allowed the students to utilise its fish-processing laboratory. SPC fully acknowledge these services. Highlights of the fishing were tuna longlining when a 60 kg tuna (a record for this course) was caught by bottom longlining for deep-water snappers. The tuna was later shipped to Japan so participants could observe its preparation. SPC's Fisheries Development Officer, Steve Beverly, supervised all fishing operations.



In it for the experience: 'Asela Lausii from Tonga (left) and Désirée Tukutama from Niue (right) working hard, hauling a mooring rope, during the practical module of the SPC/Nelson Polytechnic course, which was held in New Caledonia in June and July 2001

Students were given an introduction to scuba diving (according to the French system) to enable them to do underwater visual census surveys. The course involved theory and a pool session followed by openwater practice. The next day students did an underwater visual census with the Reef Fisheries Assessment and Management section. Staff from SPC's Health Programme gave participants an AIDS/HIV awareness lecture. Two trainees from Nauru and Niue stayed on and observed the Heads of Fisheries meeting where fisheries topics were discussed in more detail. Participants for this year's practical training course came from: Kiribati, Nauru, Tuvalu, Tonga, Niue, Samoa and Vanuatu. Two of the trainees were females.



The students were exposed to practical aspects of fishing

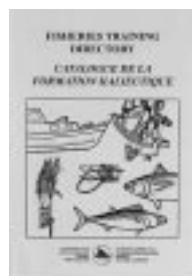


The students were exposed to practical aspects of fishing

Fisheries Training Directory distributed

The Fisheries Training Directory lists opportunities available to the fisheries sector of Pacific Island countries and territories and is available in hard copy, on database and more recently, on SPC's web-site (http://www.spc.int/coast-fish/Reports/Training_Directory).

Helene Lecomte, Secretary to the Director of Marine Resources, coordinates the management of the Directory's database and updates institutions' entries in the database as well as to SPC's website. At the end of June, a paper copy of the Directory was printed and distributed to fisheries contacts in the region and to participants of the 2nd Heads of Fisheries meeting in July.



Against the odds: women take on fisheries training

When 20-year old 'Asela Lausii signed up for the SPC/ Nelson Polytechnic Pacific Island Fisheries Officers Training course, she had little idea of what an intensive course—split between Nelson, New Zealand and Noumea, New Caledonia—would expose her too. 'Asela, who is fisheries extension officer in Nuku'alofa, Tonga, thought the toughest part of her job before leaving the Kingdom, was waking up to catch the early bus so she could get to work on time.

In July 2001, 'Asela returned to her job as a newly-certified diver, with enough sea-safety gear to start her own extension centre, and an abundance of experiences and memories. She reeled off a list of what she'd learned in 23 weeks of training: welding and engineering, netmaking, navigation and chartwork, fish handling and quality control, report writing and practical fishing. And this in spite of the fact 'Asela gets very seasick.

The only other woman in the course, 27-year-old Désirée Tukutama of Niue, was not as badly affected by seasickness. What did the two women consider to be the highlights of their training? Learning a wide range of practical and technical skills, experiencing the ocean and lagoon, and opening their eyes to marine potential in the region. The down side for both was the lack of other women in the course, as they both felt the pressure of being the only females in a class of 9.

While the Nelson training has become a mainstay of practical fisheries training in the region and in 2001 entered its 22nd year, only a handful of its more than 260 Pacific Island trainees have been women – and the numbers are an indication of the industry rather than any bias. Tukutama says most fisheries officers in Niue are men although Lausii notes that desk staff in Fisheries in Tonga tend to be women.

(Source: Lisa Williams, Women's Communication Officer)

Tonga seaweed workshop

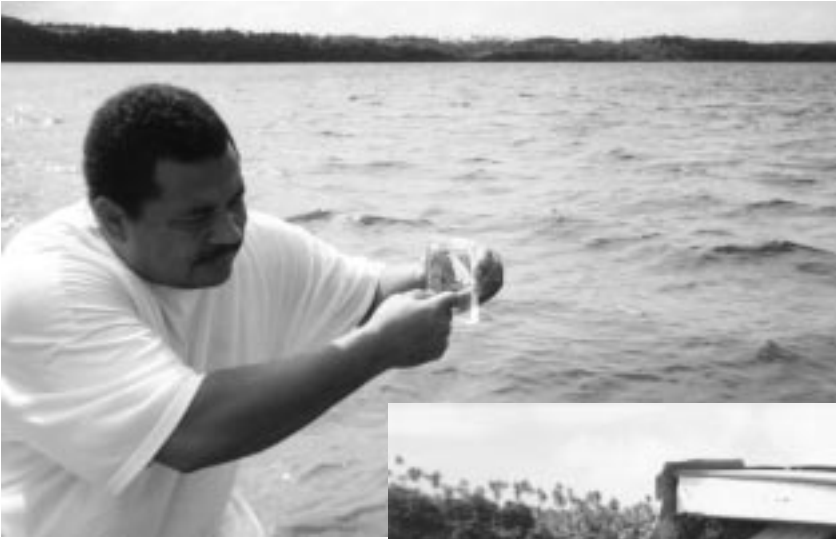
In August 2001 the Fisheries Training Specialist traveled to Tonga to assist with the organisation of a one-week workshop on seaweed farming. The workshop followed a request from the Tonga Ministry of Fisheries, which wanted to run such a programme for local staff and possibly some interested prospective farmers. With funds obtained from the Government of Taiwan/ROC, the SPC Fisheries Training Section was able to assist Tonga in initiating a seaweed-training programme. According to the 'Akau'ola, Secretary of Fisheries, Vava'u was involved in the mid 1980s in farming this type of seaweed but the programme collapsed as a result of marketing problems. There has been interest in renewing this programme, especially for remote island communities that experience problems generating cash income. The

training was held in Vava'u under the supervision of the officer in charge 'Ofa Fakahau. Delivery of the course was a joint effort between SPC and FMC Corporation (seaweed buyer).

The SPC Fisheries Training Section organised the funding and participation of competent resource persons. Esaroma Ledua from Fiji Islands was contracted as SPC consultant for the duration of the workshop; Erick Ask from FMC Corporation was sent free of charge by his employer. Esaroma and Erick are both *Euchema* specialists. Delivery of the course programme and supervision of field work were shared by the two specialists. Their participation in this workshop was an asset and overall, this second SPC course on seaweed farming was a success.



Participants preparing lines on which propagules will be attached



Seaweed specialist, Esaroma Ledua, demonstrates how to check water salinity using a simple field refractometer



*Some of the local seaweed can be good indicators that *Euchemia cottonii* will grow in the area*



A fisheries technician sets a test plot consisting of one meter line with propagules attached every 20 cm

A manual on the co-management of commercial fisheries resources

Following the successful example of commercial fisheries co-management in Samoa, a strategy for the promotion of co-management principles has been developed. This includes the wide distribution of a manual. The manual was written by the

Samoa Commercial Fisheries Adviser and ex-SPC masterfisherman Peter Watt. The Section has coordinated SPC's inputs into the drafting of the manual, which will be printed and distributed-both the French and English versions-in January 2002.



Thirteen trainers of women gathered in New Zealand

A regional course funded by New Zealand was run at the Nelson School of Fisheries from November 19 to December 07. The course was designed for people who teach women fisheries subjects at the grass-roots level. Thirteen participants from 11 countries and territories were selected and included two male fisheries officers – from Federated States of Micronesia and Solomon Islands. Because many of those participants were highly qualified, it was a real challenge for the School of Fisheries to teach them interesting topics while still emphasising the need to keep things basic for the benefit of their potential students. The course content consisted of three major themes: A one-week block on communication and teaching skills was followed by seven days on seafood technologies, and a three-day seafood business management workshop concluded the programme. Participants also developed some resource materials to take back home in the prospect of organizing in-country workshops.

All participants came with a background of training at the community level and are expected to go back home with an



"Alice Athy and Joe from Sealord Shellfish inspecting green mussels in the half shell"

enhanced knowledge of adult teaching techniques and seafood technologies. The course sessions on small business management and fisheries conservation and management will enable the trainers to run wide-ranging workshops for the benefits of communities in their countries. Both the SPC Community and Training Sections are keen to keep in touch with the trainers and remain available to further assist them with their training projects.

New materials on vessel safety

A series of new resource materials have been produced as a follow-up to recommendations made at the 6th meeting of the Association of Pacific Island Maritime Training Institutions and Maritime Authorities (APIMTIMA) in March 2001.

The materials developed by the Section are intended to promote the use of Safety Management Systems by fishing companies in the region. A Safety Management System (SMS) is an active and documented process aimed at reducing the risk of accidents for the crew, the ship and the environment; the SMS includes a series of written procedures and records and regular inspections by the authority monitoring the system.

In December, the following materials were distributed to fishing companies, fisheries administrations, and maritime authorities:

- Two information leaflets on SMSs
- A model SMS for a medium-size longliner
- A Safe Operational Plan for small commercial vessels.

If you have not yet received the above materials, please contact the Section at michelbl@spc.int. The model SMS and Safe Operational Plan can be downloaded from the Section's website (http://www.spc.int/coastfish/Sections/training/Training%20material/Training_material_Order.htm).



In Brief

- The second SPC/AFA Traineeship Programme for Pacific Island Fishers will run from January 16 to the end of March 2002. This programme, delivered by the Australian Fisheries Academy in Adelaide, targets promising young fishing deckhands who have a potential to move up the ranks to skipper's positions. Following a successful first edition in 2000, the Training Section had secured AusAID funding for eight trainees to study at AFA from October to December 2001. Tighter immigration policies following the September terrorist acts in the US made it difficult for most selected deckhands to obtain their Australian visas on time; consequently, SPC and AFA decided to run the programme early in 2002. Trainees from Papua New Guinea, Tonga and Kiribati will spend six weeks at AFA's campuses in Port Adelaide and Port Lincoln before a four-week fishing experience on board Australian commercial fishing vessels. Trainees have been selected from fishing companies engaged in tuna longlining, tuna purse-seining, prawn trawling and deep-bottom snapper drop-lining.
- Following successful workshops in Vanuatu and Tonga, Section staff wish to continue promoting seaweed farming amongst coastal communities in the region. Using remaining funds from a Taiwan-funded project, the Section is working on the production of a video that is likely to be filmed in Kiribati. It is envisaged the video will promote seaweed farming as a small income earning activity without going into technical details – USP being in the process of filming a technical training video in Fiji. SPC and USP videos should complement each other, providing useful resource materials for future workshops.
- In Samoa, a tuna loining workshop was run in April for staff of three Apia-based fish exporting companies. The Section hired a tuna filleting expert from Tahiti as the resource person for the workshop. As a result of this training and the tuna grading workshop run in December 2000, local companies have diversified the marketing of their tunas, with exports of fresh chilled sashimi-grade yellowfin and big-eye tunas as well as albacore tuna loins having increased sharply.
- In May, with funding assistance from New Zealand, a fishing industry study tour was organised for five senior fisheries managers. The two-week study tour consisted of visits to fisheries institutions and seafood enterprises in Wellington and Nelson to expose participants to New Zealand's approach to the co-management of its commercial fisheries resources. Of particular interest was the relationship between the Ministry of Fisheries and the various stakeholders. This study tour, the first of its kind in the region, was perceived as extremely useful by the five participants from Tonga, Papua New Guinea, Federated States of Micronesia, Samoa and French Polynesia.
- Funding is now secured for the 23rd SPC/Nelson Fisheries Officers course, which will begin on January 21 at the School of Fisheries. The main donors, New Zealand and Commonwealth Secretariat, have however requested SPC to undertake a review of the course and past participants. It is envisaged the review will be carried out by a consultant and will include visits of a few countries that have benefited from the course. Funding of future courses will depend on the review's outcomes.
- Late in 2001, the Section submitted three funding proposals to Taiwan/ROC's Scholarship Fund. Pipeline projects include a series of in-country workshops on HACCP and seafood quality management, a regional course for fishing-specific engineering skills training (hydraulic, refrigeration and electrical systems) and a regional course for fisheries enterprise managers.
- The Section's website (www.spc.int/coastfish/Sections/training) has recently been updated with the inclusion of a Powerpoint presentation of the Section and an E-form for ordering the Section's resource materials. We invite all our fisheries contacts to have a look at THE website!



AROUND THE TRAINING AND EDUCATION CENTRES



Vanuatu Maritime College Training Calendar 2002

Safety Certificate: 2 weeks commencing Fee : VT 8,000	21/01/02, 15/04/02, 08/07/02, 30/09/02,	18/02/02, 13/05/02, 05/08/02, 28/10/02,	18/03/02 10/06/02 02/09/02 25/11/02
Deck Watch Rating: 4 weeks commencing Fee : VT 14,000	18/02/02,	03/06/02,	18/11/02
Master < 20GT: 5 weeks commencing Fee : VT 17,500	14/01/02,	17/06/02,	28/10/02
Master < 200 GT: 11 weeks commencing Fee : VT 38,500	18/03/02,	05/08/02	
Marine Radio Communications: 4 days commencing Fee : VT 2,800	18/02/02, 21/10/02,	03/06/02, 02/12/02	22/07/02
Engine Watch Rating: 5 weeks commencing Fee : VT 17,500	25/02/02,	05/08/02	
Engineer < 75kW: 5 weeks commencing Fee : VT 17,500	14/01/02,	17/06/02,	11/11/02
Engineer < 300kW: 10 weeks commencing Fee : VT 35,000	01/04/02,	02/09/02	
Overseas Rating : 16 weeks commencing Fee : VT 56,000	14/01/02,	06/05/02,	26/08/02

Rural fisheries training to be arranged in consultation with provincial governments. Small vessel operators and water taxi operators to be arranged as needed. Courses dates may be changed subject to student or industry demand.

Employers and interested seafarers are advised to maintain contact with the College for up-to-date information.

Employers and seafarers are reminded that all seafarers serving aboard registered vessels must complete a safety certificate before 1/2/2002 and that certificates of compe-

tency must be upgraded before that date if the holder wishes to continue in operation.

Certificates of competency issued before February 1997 will not be valid for use after 1 February 2002.



Over a thousand trained on safety at sea in Yap

Using a 'train-the-trainer' approach, the US Coast Guard's base in Guam, undertook in 2001 to raise the safety awareness of communities in Yap.

Early in the year, 98 trainers received sea safety instruction from USCG staff. Gradually, the knowledge and skills have been spread amongst schools and villages throughout the outer islands of Yap State. In total, over 1000 persons have been trained.

Essential safety items such as marker dyes, signaling mirrors and reflective blankets were donated by Mobil Oil Micronesia for demonstration purposes while the SPC Safety Campaign materials were used by trainers or distributed to participants.

The loss of traditional seafaring skills in FSM has been a cultural as well as financial problem for a while. It is estimated that between 1996 and 1999 the USCG spent over US\$4.6 millions on Search and Rescue activities in FSM waters. Organisers of the recent boat safety programme in Yap are, however, confident that this massive training effort will substantially reduce the incident rate at sea and associated SAR costs. The SPC Fisheries Training Section will continue to back up safety-at-sea training in FSM by providing resource materials for future workshops.

Michel Blanc
Fisheries Training Adviser

Source: Captain Serphen Single



Local trainers in Yap



Governor of Yap State, Vincent Figir, at the training ceremony with the USCG trainers



Captain Scott Glover, Commander of the USCG Marianas Section, at the closing ceremony

STAC - aqua business success story

The practical training in aquaculture offered by the Sepang Today Aquaculture Centre (STAC) has become a stepping-stone to success for aquaculturists in Malaysia.

STAC began in 1996 on a shrimp farm deep inside an oil palm plantation off the main road linking Sungai Pelek to Sepang, about 30 km south of Kuala Lumpur International Airport.

Frequent visits to the farm by local and overseas aquaculturists motivated proprietor Khoo Eng Wah to the farm into a practical training centre for anyone wanting to venture into the aquaculture business.

"I've been here since 1987. A lot of people came over to ask me how to do the prawn farming. I thought that I'd better make full use of my facility, so I decided to set up the training centre here in 1996," recalled Mr Khoo, who has been the only trainer at STAC since then.

Symbol of success

Mr Khoo's remarkable success in shrimp farming and hatching of economic species draws a lot of attention from people who have been in or want to get into the aquaculture business.

With a double degree in biology and fisheries sciences, Mr Khoo bases his shrimp farming and hatchery operations solely on scientific ground. He is always learning and developing new farming techniques as they are the only tool to achieve productivity and cost-effectiveness, the factors that he deems vital to profitability in the business.

No wonder Mr Khoo was the first in Malaysia to use plastic sheets to line shrimp ponds more than 10 years before anyone else.

"The soil in my area is very acidic. Every time water pH is very low and iron content is very high. That's why my production was very bad during the first two years.

"So, I decided to use the liner. As the soil and water is separated by the liner, I can keep up with the right water parameter, making my production improved since then," said Mr Khoo.

Today, the old ponds with the plastic liners are still in use at Mr Khoo's farm and each 2,000-square-metre pond yields 1.2-1.5 tonnes of 40 pieces/kg shrimps per a four-month crop. Besides farming black tiger shrimp, he is also known to aquaculturists across Malaysia and abroad as a hatchery

operator who has introduced many new species to the aquaculture industry in Malaysia.

Mr Khoo is the first Malaysian hatchery operator to export black tiger shrimp fry to Thailand. He also started the commercial hatching of marine white shrimp (*P. merguensis*), freshwater shrimp (*M. rosenbergii*), seabass, red tilapia, mud crab, Chinese soft-shell turtle and American bull frog, to name a few.

Recently, he initiated the live delivery of shrimp without using water for Malaysian shrimp farmers who want to export live shrimp to China.

His experiments showed that by packing the shrimp in oxygenated bags at about 17 degrees Celsius, they could be kept alive for almost 20 hours.

Training

What Mr Khoo learns from his visitors is that many of them want to invest in aquaculture but lack technical knowledge.

"Without technical knowledge, you could simply fail in the aquaculture business because there are a lot of risk factors," he said.

With this in mind, Mr Khoo commenced his first training course in 1996 by using his farm and hatchery as the classroom and dormitory.

The training is flexible and the content varies according to participants' requirements. Basically, there are two main courses: a 10-day curriculum on aquaculture production and a 25-day curriculum on hatchery techniques.

Each month, both 10-day and 25-day courses run concurrently. Normally, participants in the two courses will attend the same class for a theoretical lecture during the first six days, then the remaining days are devoted to practical work on farming and hatchery techniques at the centre.

Before the technical lecture, Mr Khoo will discuss the market first and then go to potential species that are suitable for the trainees' geography.

"If you want to go into the aquaculture business, you have to identify the market first, and then see which species is suitable for you in your area," he stressed.

Mr Khoo usually suggests that his students from inland areas consider freshwater shrimp first as the consumption in

Malaysia is growing and its price is higher than freshwater fish such as red tilapia and carp, which require a long stocking period per crop.

Students from the coast, he said, almost all want to farm black tiger shrimp and he agreed as the market is promising both locally and overseas.

The choice of species is up to the students. After they have settled on the species to study, Mr Khoo will discuss the overall factor affecting success or failure in the production of the given species from preparation to harvest.

"We list all the risk factors and discuss how to tackle them, starting from soil structure and water chemistry as well as how to test and analyse them. Then you have to go into details: how to construct the pond, check the fry quality, do the feeding, and estimate the population in the pond," he said.

Mr Khoo emphasizes practical training using actual on-farm situations as lessons. This is STAC's strength and it attracts aquaculturists from across Malaysia and even overseas to attend the courses it offers.

"Remember that aquaculture is commercial, so you have to consider the cost and productivity all the time," he said.

To date, over 1,000 trainees have graduated from STAC. They come from across Malaysia particularly from Sarawak and Sabah and from overseas- ranging from Russia to the Middle East, China and Taiwan.

"Ninety per cent of shrimp farmers from eastern Malaysia attended my courses," said Mr Khoo. "With the help of my centre, people are getting smoothly investing into the aquaculture business."

Spread by word of mouth, the STAC courses have become a stepping stone for aquaculturists in Malaysia and elsewhere in Asia who want to be successful in their business.

Sidebar I Management of lined ponds

The use of lined ponds provides many advantages to shrimp farmers, but careful management is needed to ensure that its benefits are maximised.

Khoo Eng Wah, managing director of Sepang Today Aquaculture Centre who initiated the use of plastic sheets to line shrimp ponds in Malaysia, said that water transparency in the lined pond is normally high because the earth is separated from the water.

As a result, he said, it is difficult to culture algae in the pond, obstructing the growth of phytoplankton.

"Therefore, we have to keep on monitoring the transparency of water to make sure that the right water colour is maintained," said Mr Khoo.

With more than 10 years experience in using the lined ponds, Mr Khoo solves the problem of water transparency by fertilising the water. He treats 4,000 tonnes of water with rice bran (50 kg), soybean meal (50 kg), fishmeal (20 kg) and bread yeast (1kg). Within three days, he said, the water colour comes out and will remain stable throughout the crop if additional photosynthesis bacteria are put into the pond.

According to Mr Khoo, the lined pond has many advantages for him as he does not need to worry about soil chemistry and structure anymore.

In addition, the pond bottom is clean as there is less anaerobic process, resulting in a low level of sludge compared with an earthen pond.

This means Mr Khoo can stock the next crop quickly as the pond bottom is easily cleaned. "Just scoop out the sludge from the bottom, you can restock immediately," he said. Using the lined pond also saves on energy costs as only two aerators are needed for a 2000-square-metre pond because there are no organisms at the bottom vying for oxygen like in earthen ponds.

Mr Khoo says that using the liner is more efficient with circular ponds than with rectangular ones. Because the pond is round, water movement is improved. In contrast in a rectangular pond, the water can stagnate in the corners, causing oxygen deficiency in that area. High-density polyethylene (HEDP) should be used as it lasts for more than 15 years, he adds.

Sidebar II Cultured species in Malaysia

Black tiger shrimp (*P. monodon*) – farmed along the coast throughout the country mainly for export. However, local markets in Malaysia are also promising. In Kuala Lumpur alone, the consumption peaks at three tonnes a day during the festival. It is a high potential market with a population size of over two million.

Seabass – the most popular fish cultured in Malaysia mainly for Kuala Lumpur markets and export to Singapore.

White shrimp (*P. merguensis*) – farmed in the southern part of the country near Singapore for example Johor. This is a market both in the country and overseas especially Singapore.

Freshwater shrimp (*M. rosenbergii*) – the most suitable cultured species for inland areas, as it is increasingly popular among consumers of all races in Malaysia.

Giant snakehead – mostly farmed in Johor and mainly exported to Singapore.

Red tilapia – farmed throughout the country in cages and ponds; sold mostly to local markets and some exported to Japan and the US.

Bighead carp, grass carp, common carp – normally farmed in former mining ponds in Ipoh and sold to Singapore.

Pangasius catfish – cheap fish but still farmed in some parts of Malaysia for export to Indonesia in exchange for marine fish such as grouper, snapper and white pomfret.

Sidebar III

Courses available at Sepang Today Aquaculture Centre

1. Tiger prawn breeding and cultivation
Seabass breeding and cultivation
Freshwater prawn breeding and cultivation (technical transfer)

The maximum intake for each course is eight people. Subjects include: breeding and farming, production of artemia, rotifer, plankton like *Skeletonema*, *Chatoceros* and *hlorolla*. grading of prawns and sea bass. Total cost is USD 1950 per person (25 days including double occupancy air-

conditioned accommodation, transport, meals and tutorial fees). After completion of the course, the trainee will be able to produce juvenile tiger prawn.

2. Freshwater prawn
Tiger prawn
Chinese hairy crab culture-10 day; 6 days

Subjects include: breeding and raising, water management, medical treatment, disease control, practical experience. STAC - aqua business success story and an excursion. Total cost USD 1000 (10-day) ; USD 800 (6 day)

3. One-day course for those interested or are too busy to take a full course (home study).

Course includes: Tiger prawn culture; freshwater prawn culture, Chinese hairy crab culture; mud crab culture; edible fish culture; American bull frog culture; Australia red claw culture; soft - shell turtle culture. Each subject costs USD 200; price includes notes, videotape, practical question – and – answer booklet.

For more information please contact:

Mr Khoo Eng Wah
E-mail: chansuet@tm.net.my
www.todayaqua.com.my

4th World Fish Inspection & Quality Control Congress

by Tony Chamberlain, University of the South Pacific

The 4th World Fish Inspection & Quality Control Congress was held in Vancouver, Canada from 24-26 October, 2001 in association with the 2nd Annual General Meeting of the International Association of Fish Inspectors from 22-23 October, 2001. The Congress is very valuable in terms of finding out what is happening globally in the area of fish inspection. It was good to see another person who works in the Pacific Island region: Aquina Rogers Kango, who heads the Audit and Certification Unit for PNG's National Fisheries Authority was also there. There were also some public servants and consultants from Australia and New Zealand.

Congress topics of interest to the Pacific Islands:

Round table discussion: challenges for developing and emerging countries.

People from many emerging regions of the world voiced their opinions in this session chaired by delegates from the Codex, FAO, WHO, USFDA and other organisations.

The main problems raised were:

- poor understanding of markets
- processing that does not always reflect consumer demand
- inflexible or outdated regulatory systems
- lack of competent authorities
- institutional instability
- fear of change
- lack of political will (other priorities)
- lack of national and international commitment
- assistance from "outsiders" who do not understand local conditions (better to develop in-country capacity)
- need for technical training
- lack of resources
- management selected for technical skills not business skills
- lack of management awareness of the importance of quality and safety
- HACCP training needs to include planners to be effective

- no scope in HACCP to include artisanal/traditional fisheries (where many products come from)
- rejection of product at markets (especially EU) (if no codex then it must be based on science)
- lack of environment to implement HACCP, i.e. applied research, technical data, accredited laboratories
- lack of environmental monitoring systems (expensive – need regional collaborative projects).

The needs suggested were:

- harmonisation of and with international legislative requirements (e.g. Codex, EU, US regulations)
- harmonising HACCP-based programmes
- more defined roles for, and links between, the public and private sectors
- better communication and information systems both nationally and internationally
- more government monitoring of seafood
- career ladder incentives
- improved facilities (e.g. laboratories)
- more technical training (on design, implementation and auditing HACCP based on Codex)
- more commitment to seafood quality and safety
- stronger government leadership (there was some discussion on decreasing government involvement by privatising fish inspection, but accreditation and international affairs were seen as government issues)
- single national food control agency
- more funding for seafood quality and safety
- strengthen national codex-contact point, and their links with research institutes and government
- better developed scientific capacity to avoid technical trade barriers.

There are many points to ponder here. While not all of these problems and needs may apply to the Pacific Islands, some certainly do. There is progress being made in some countries in the application of HACCP by governments and industry. There is, however, much work still to be done and some technical and scientific realities to face. Also better understanding is needed at national, regional and international levels on how to put into practice the new knowledge we are accumulating. One thing is certain: In order to succeed, the verification of HACCP systems at industry and government levels must be improved.

Codex Alimentarius

Tom Billy, chairman of Codex, stated that there was an action plan to strengthen Codex's credibility by:

- improving the efficiency and speed (currently a 6-year waiting list to review existing standards)
- strengthening scientific-based decision making
- increasing participation of developing countries

- establishing a WHO/FAO participation trust fund
- increasing transparency and participation of NGOs
- increasing support and cooperation from FAO/WHO

The overall message here is that Codex will be more important than ever for the trade of seafood. The good news for the Pacific Islands is that there will be a trust fund sponsored by WHO to allow some people from emerging regions to attend. It is only right that you get a say in matters that affect you internationally. A strong word of caution emerged – that the people from emerging countries need to be scientifically trained. There have been incidents where delegates, chosen because of political influence, voted on a standard that they had very little knowledge about. It was suggested by FAO that they may provide earlier capacity support by approaching countries and identifying relevant people and discussing the specific issues closely with them before the Codex meetings. Also another problem outlined was that the codex-contact point is usually not a fisheries person.

World Trade Organisation

The fish and fishery product sector is affected by a number of WTO sectors. In turn a broad range of interests will influence these sectors. WTO trade ministers were scheduled to meet in Doha, Qatar in November 2001 to decide whether or not to launch a new round of trade negotiations. Regardless of the outcome of Doha, changes in international trade law and policy will potentially have a significant impact on the fish and fish products industries. Everyone involved in the industry should keep a close watch on these developments.

Rapid test kits

- "Mist Alet" for PSP, Biotek, Canada
- Quality index method for determining fish freshness, Iceland
- Multi-sensor techniques for monitoring fish quality, Germany
- Smell intensity instrument that determines quality rapidly, Israel

Tuna 2002 Conference

The 7th World Tuna Trade Conference will be held from 29-31 May 2002 in Kuala Lumpur, Malaysia. This conference has always been the largest tuna industry gathering. Focus will be on global tuna resources, trends in markets, product development and new markets, tuna trade through dotcoms safety issues affecting consumption and imports, and environmental issues including eco-labelling.

For more information contact:

INFOFISH, PO Box 10899, 50728 Kuala Lumpur, Malaysia.
Tel (603) 26914466, Fax (603) 26916804, email infish@po.jaring.my, website <http://www.infofish.org>

**Training Course on Grouper Hatchery Production
Gondol Research Institute for Mariculture, Bali, Indonesia
in Co-operation with Network of Aquaculture Centres in Asia-Pacific
and the Asia-Pacific Grouper Network
Bali, Indonesia, 1st – 21st May 2002**

A grouper hatchery production course is being held in Bali, Indonesia, for hatchery operators, technicians and researchers involved in grouper aquaculture hatchery production, research, development and extension. The training course is organised and supported by the Ministry of Marine Affairs and Fisheries, Indonesia, the Network of Aquaculture Centres in Asia-Pacific (NACA), the Australian Centre for International Agricultural Research (ACIAR) and the Asia-Pacific Economic Co-operation (APEC). It is one of the activities of the Asia-Pacific Grouper Network (<http://www.enaca.org/grouper/>). The Gondol Research Institute for Mariculture (GRIM) has extensive short- and long-term training for Indonesian farmers and technical staff. Such activities have contributed to the development of grouper hatcheries in Indonesia. This is the first time that GRIM is offering a grouper hatchery course for participants from the Asian region, in co-operation with NACA and the Asia-Pacific Grouper Network.

Objective

The objectives of this regional training course are to provide practical hands-on training on the following topics :

- grouper broodstock management techniques, including handling, feeding, broodstock nutrition, control of the reproductive cycle, spawning techniques and egg collection and incubation;
- larval rearing, including feeding and hatchery practices;
- grouper diseases and health management, including viruses (VNN), and common diseases of marine fish;
- mass production of live food (phyto- and zoo-plankton).

The target grouper species for the training course will be mainly *Cromileptes altivelis* (mouse grouper), but participants will gain experience with handling *Epinephelus fuscoguttatus* (tiger grouper) and other marine finfish species. The training course will provide participants with a unique opportunity to visit private-sector hatcheries and nurseries in the Gondol area, and some information on mariculture development in Indonesia.

Organisers

The grouper hatchery training course is jointly organised by the Gondol Research Institute for Mariculture (GRIM), Bali, Indonesia, and the Network of Aquaculture Centres in Asia-Pacific (NACA).

Date and duration

The course will be 21 days in duration, from 1st to 21st May 2002.

Course schedule

The training course will be held at GRIM, from 1st May to 21st May 2002. Participants are expected to arrive in Denpasar on 30th April 2002, and will be picked up at Denpasar airport and transported to GRIM a three-hour journey. Participants will return to Denpasar on 22nd May 2002, and should arrange to depart on or after that date.

Venue

The training course will be conducted at the GRIM campus in northern Bali, which is equipped with good facilities for training and research activities.

Participants

The course involves mainly practical hands-on teaching, supported by short lectures and workshop discussion sessions. It is intended for technicians and scientists from the private sector, NGOs and government who are actively involved in grouper aquaculture development, research and extension. The participants should have good English proficiency.

Language

The course will be conducted in English. The local language is Bahasa Indonesia – translations will be provided during visits to private farms.

Resources, Speakers and Trainers

Most of the topics will be delivered by the grouper resource persons from GRIM, supplemented by specialists from elsewhere in Indonesia.

Subjects to be covered

The training course will involve: 40 per cent lectures and small workshops, 50 per cent practical work in the laboratory and on-station hatcheries and outdoor activities, and 10 per cent field trips.

The topics include:

- management of broodstock
- management of larval rearing
- feed and feeding technique for broodstock, larvae and juveniles
- fish diseases, prevention and control
- mass production of live food for larvae
- transportation of seed and broodstock
- grow-out at floating net cages (brief introduction)
- brief overview of mariculture development in Indonesia.

The fieldwork will be conducted around the island of Bali, at small-scale backyard hatcheries and private grouper hatcheries at Negara and grow-out and trading facilities at Denpasar.

Certificate of accomplishment

All participants will be awarded a certificate of completion to certify that they have met minimum performance requirements as evaluated by the resource persons, the course coordinator, and the board of directors at GRIM. The trainee's performance will be evaluated based on his/her participation in class discussions and activities in the laboratory and outdoors.

Application

All participants are required to complete an application form and send it to the NACA Secretariat, at the address on the form. NACA will then submit the applications to the director of GRIM for formal acceptance. Participants are required to have a valid passport and an entry visa for Indonesia at least for the duration of the training course. Travel documents including passport, visa, fiscal and exit fee are to be arranged by the applicants at their own cost. NACA will assist with visas, if required, in collaboration with GRIM and Indonesian authorities.

Application for registration in the training workshop should be sent to the NACA Secretariat by 30th March 2002.

Registration fee

Qualified participants will be required to pay a course fee of US\$1,500. This fee will cover the cost of training materials and supplies, administrative costs and local travel associated with the training. The costs of accommodation and food at a nearby hotel will be the responsibility of the participant. At present, only one local hotel is available (see below), but participants will be advised of alternative options that may become available. Booking should be done through the NACA Secretariat.

Accommodation

Accommodation will be at the Taman Sari Bali Cottages. This pleasant beachside resort hotel is a 10-minutes drive from the Gondol station. Room rates for an air-conditioned room with hot water are around US\$35 (to be confirmed) including breakfast. Details of the hotel can be found at www.balitamansari.com.

Payment

Registered participants are required to pay the full training course fee of US\$1,500 or a 10 per cent non-refundable fee of US\$150 by 30th March 2002. Payment can be made by either credit card or bank draft (details of payment are shown in the registration form). NACA and the Ministry of Marine Affairs and Fisheries reserve the right to cancel the training course in the event that an inadequate number of participants enrol.

For further information or an application form, please contact:

Mr Sih-Yang SIM
 Asia-Pacific Grouper Network
 c/o: NACA Secretariat
 P.O. Box 1040
 Kasetsart Post Office
 Bangkok 10903, Thailand
 Tel: +66 2 5611728 or 1729, Ext. 120
 Fax: +66 2 5611727
 E-mail: grouper@enaca.org

Fisheries Training in Nauru – Plans for 2002

In the absence of an established institution dedicated to fisheries or maritime training institutions, Nauru plans to set-up a small marine school to cater for the short-term needs of its fisheries and maritime sectors, such as fishing techniques, outboard motor maintenance, navigation, safety, fire-fighting, etc. At present, some courses in fire-fighting, first aid, survival are offered as and when required, in order to meet the requirements of STCW95 for basic pre-sea

training. The crew of Nauru's sole tuna longliner have undergone this training programme. Other training programmes are conducted on an ad-hoc basis by the Nauru Fisheries & Marine Resources Authority (NFMRA) to address the needs of local fishermen.

NFMRA's plans with regards to staff training in 2002 are as follows:

- one staff to attend the 2002 SPC/Nelson Polytechnic Fisheries Officers Course
 - two staff to attend the OFCF Pacific Islands Fisheries Training Course in Japan
 - one staff at USP to start a BA degree
 - one staff at USP to undertake a MBA (subject to USP's approval)
 - one staff in either Canada or UK to undertake a Master in Marine Management or Master of Applied Science (subject to approval)
 - one staff to attend a post-graduate diploma in Leadership course at the East-West Centre
 - approximately 10 staff to undertake in-country workshops in welding, refrigeration and outboard motor organised by the Overseas Fisheries Co-operation Foundation of Japan
 - others to undertake training attachments in Fiji in aquaculture and aluminium welding
 - at least one or two staff to attend longline vessel training attachments
- The new NFMRA's Human Resources Development Officer, Masau Detudamo, was appointed early in January 2002.
- Source: Peter Jacob, Nauru Fisheries and Marine Resources Authority

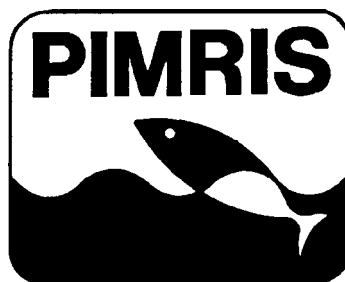


NFC 5, an 18 meter catamaran, was at the end of 2001 Nauru's sole tuna longliner"



Staff of Nauru Fisheries Corporation packing large big-eye tunas for exports

PIMRIS is a joint project of four international organisations concerned with fisheries and marine resource development in the Pacific Islands region. The project is executed by the Secretariat of the Pacific Community (SPC), the South Pacific Forum Fisheries Agency (FFA), the University of the South Pacific's Pacific Information Centre (USP-PIC), and the South Pacific Applied Geoscience Commission (SOPAC). This bulletin is produced by SPC as part of its commitment to PIMRIS. The aim of PIMRIS is to improve the



Pacific Islands Marine Resources Information System

availability of information on marine resources to users in the region, so as to support their rational development and management. PIMRIS activities include: collection, cataloguing and archiving of technical documents, especially ephemera ('grey literature'); evaluation, repackaging and dissemination of information; provision of literature searches, question-and-answer services and bibliographic support; and assistance with the development of in-country reference collections and databases on marine resources.